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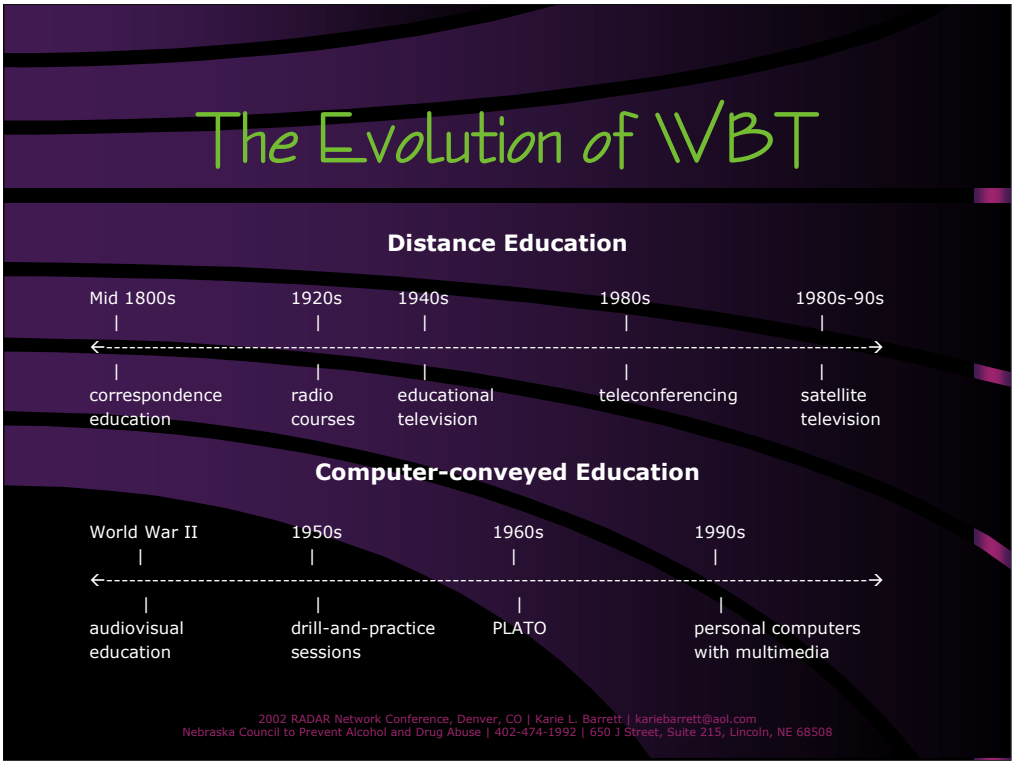


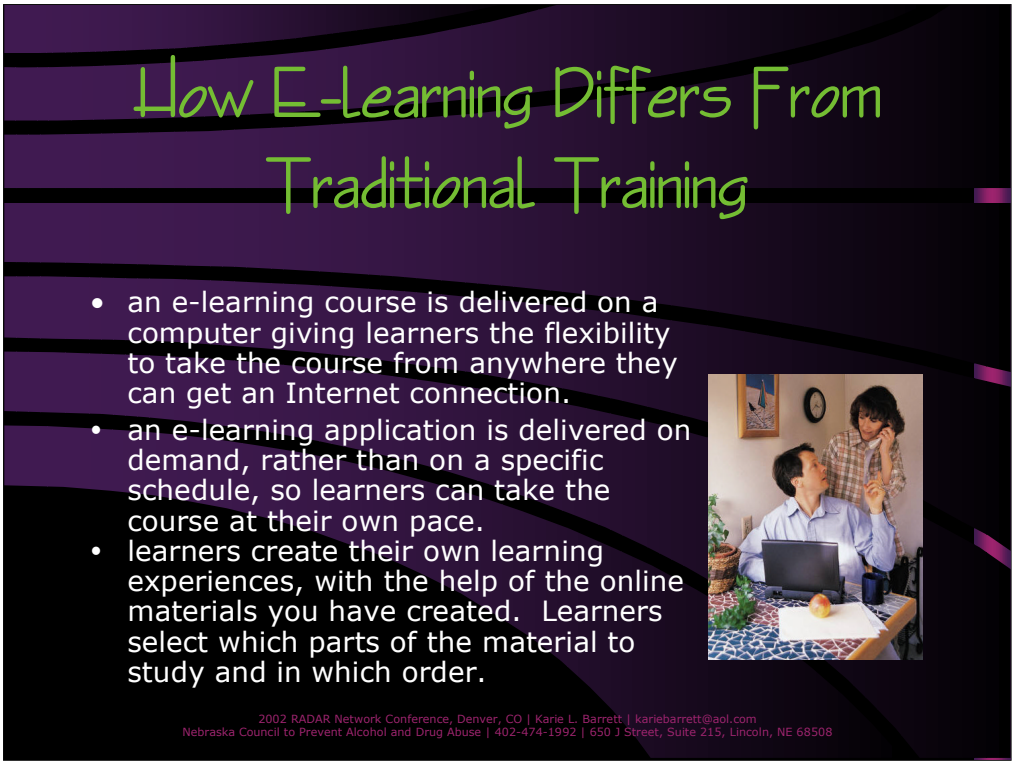
The Evolution of WBT

Web-based training has evolved from distance learning, computer-conveyed education, and new web technologies.

Distance education evolved from correspondence education in the mid 1800s through radio courses in the 1920s, educational television in the 1940s, teleconferencing in the 1980s, and finally to satellite television in the 1980s and 1990s. WBT is the latest advance in distance education.

Computer-conveyed education evolved through the audiovisual education that utilized film and audio-recordings along with richly illustrated training manuals during World War II, the use of drill-and-practice sessions for elementary students utilizing an expensive mainframe computer in the 1950s, the development and use of Programmed Logic for Automatic Teaching operations (PLATO) starting in the 1960s, to the widespread use of personal computers with multimedia capabilities in the 1990s.

In a sense, WBT began the first time someone read a Web page and learned something. The intense competition of the "browser wars" of 1998 and 1999 yielded several advancements such as Dynamic HTML, richer scripting languages, and the ability to display XML documents, encouraged more WBT developments. By late 1999, WBT was clearly developed as a significant training and education medium.



How E-learning Differs From Traditional Training

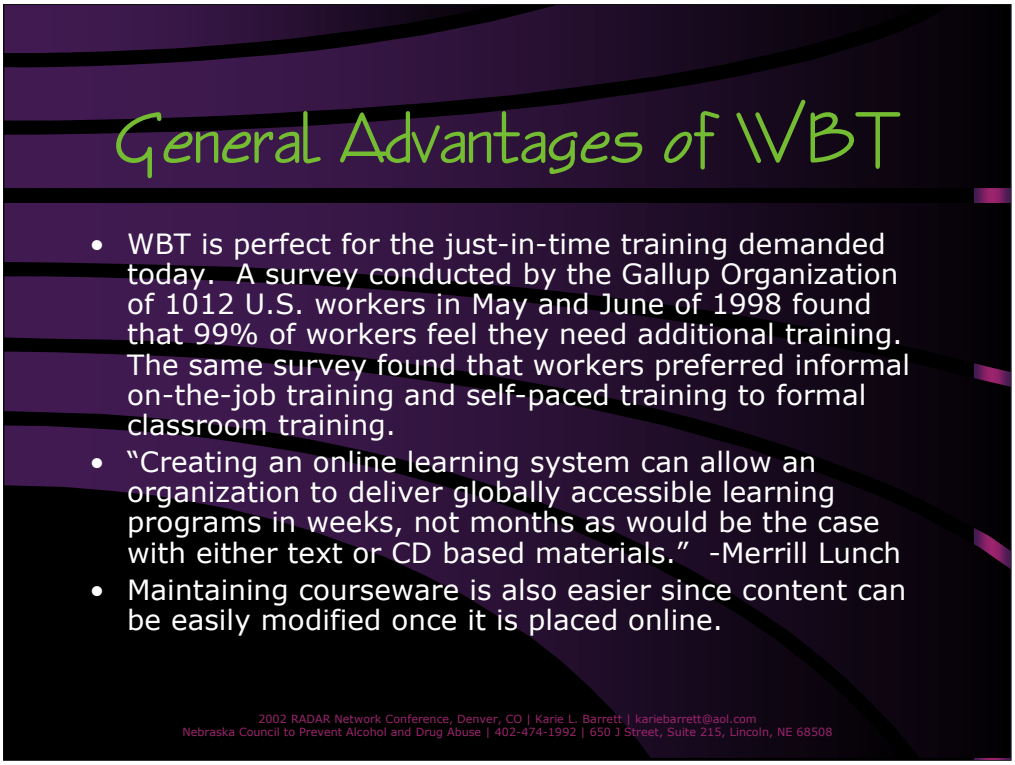
E-learning differs from traditional training in three main ways:

- an e-learning course is delivered on a computer giving learners the flexibility to take the course from anywhere they can get an Internet connection.
- an e-learning application is delivered on demand, rather than on a specific schedule, so learners can take the course at their own pace.
- learners create their own learning experiences, with the help of the online materials you have created. Learners select which parts of the material to study and in which order.

Considerations: Taking Classroom Training to the Web

Considerations to be made when taking classroom training to the web:

- General Advantages of WBT
- Common Pitfalls
- Advantages and Disadvantages to the Producer
- Advantages and Disadvantages to the Learner
- Who are the Learners?
- Adults Using the Internet for Learning
- You and Young Adults Using the Internet for Learning
- Cost Considerations

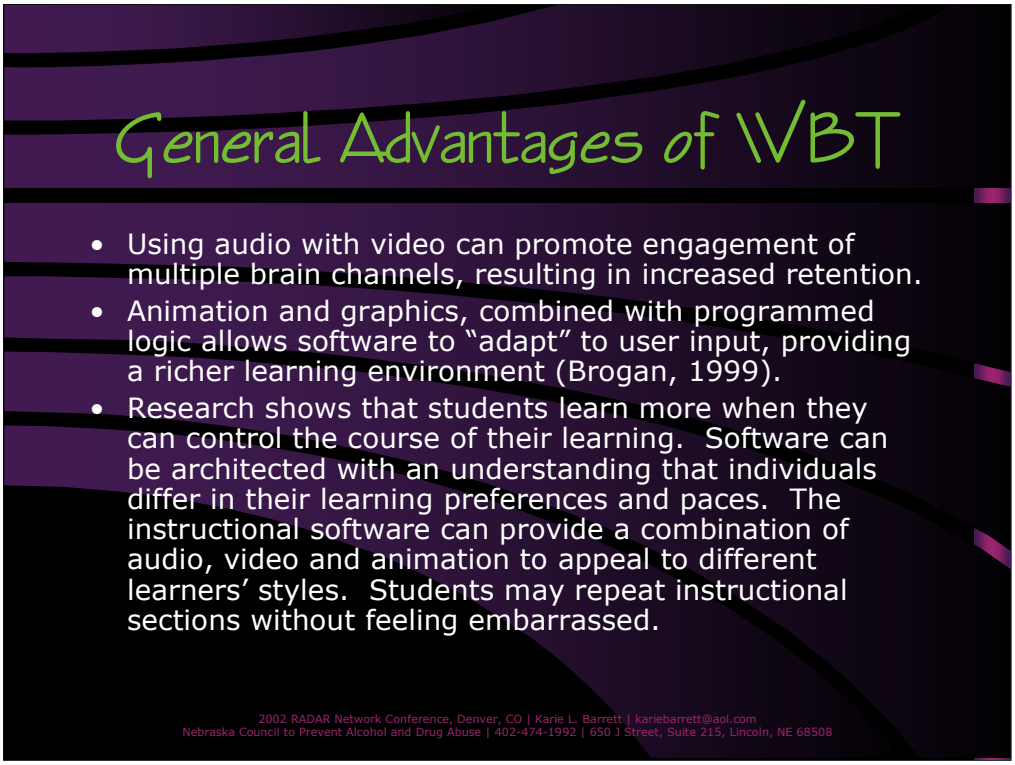


General Advantages of WBT

- WBT is perfect for the just-in-time training demanded today. A survey conducted by the Gallup Organization of 1012 U.S. workers in May and June of 1998 found that 99% of workers feel they need additional training [2]. The same survey found that workers preferred informal on-the-job training and self-paced training to formal classroom training.

- "Creating an online learning system can allow an organization to deliver globally accessible learning programs in weeks, not months as would be the case with either text or CD based materials." -Merrill Lunch [15]

- Maintaining courseware is also easier since content can be easily modified once it is placed online. [15]

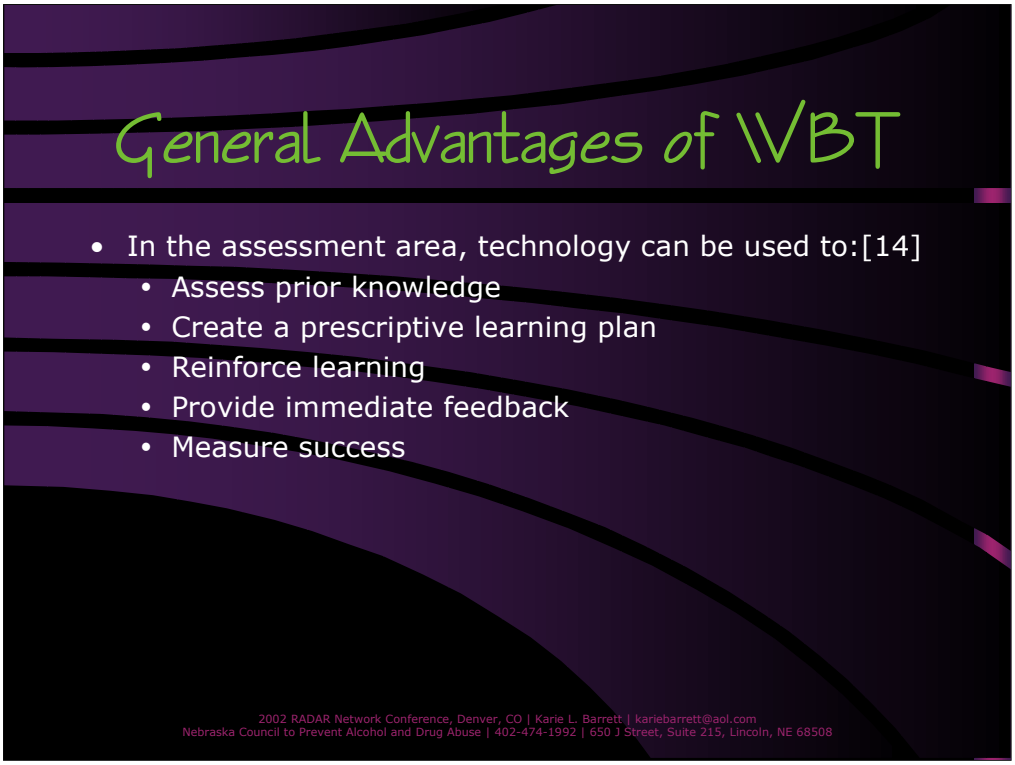


General Advantages of WBT

- Using audio with video can promote engagement of multiple brain channels, resulting in increased retention. [15]

- Animation and graphics, combined with programmed logic allows software to "adapt" to user input, providing a richer learning environment (Brogan, 1999). [14]

- Research shows that students learn more when they can control the course of their learning. Software can be architected with an understanding that individuals differ in their learning preferences and paces. The instructional software can provide a combination of audio, video and animation to appeal to different learners' styles. Students may repeat instructional sections without feeling embarrassed. [14]



General Advantages of WBT

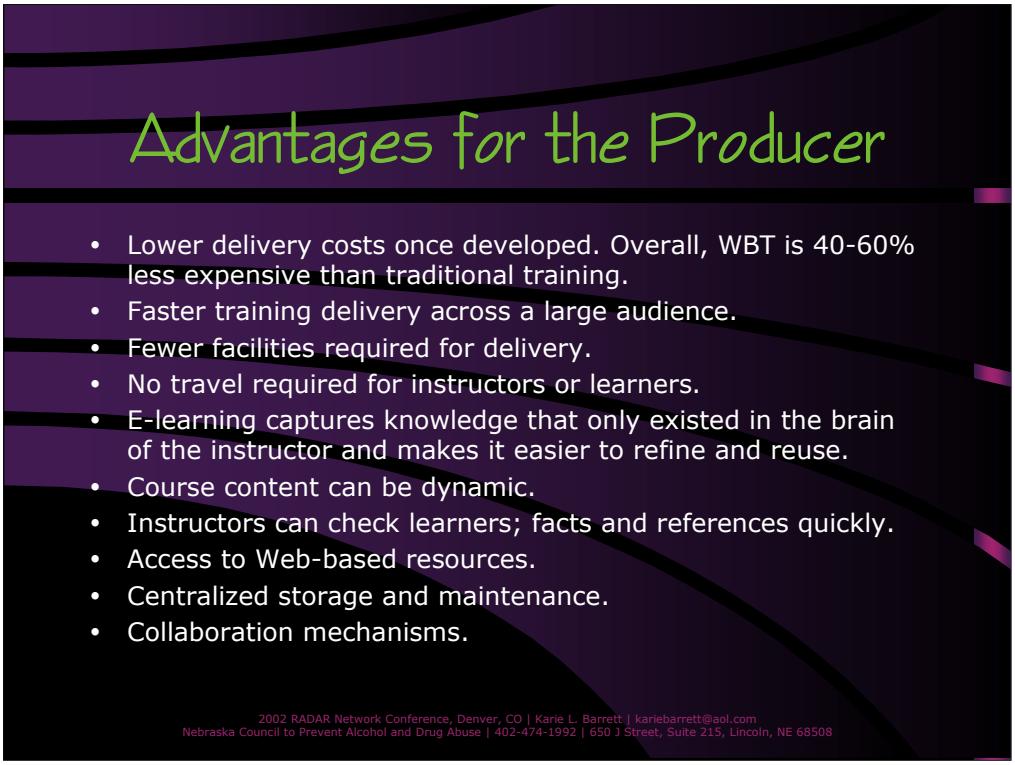
In the assessment area, technology can be used to:[14]

- Assess prior knowledge
- Create a prescriptive learning plan
- Reinforce learning
- Provide immediate feedback
- Measure success

Common Pitfalls

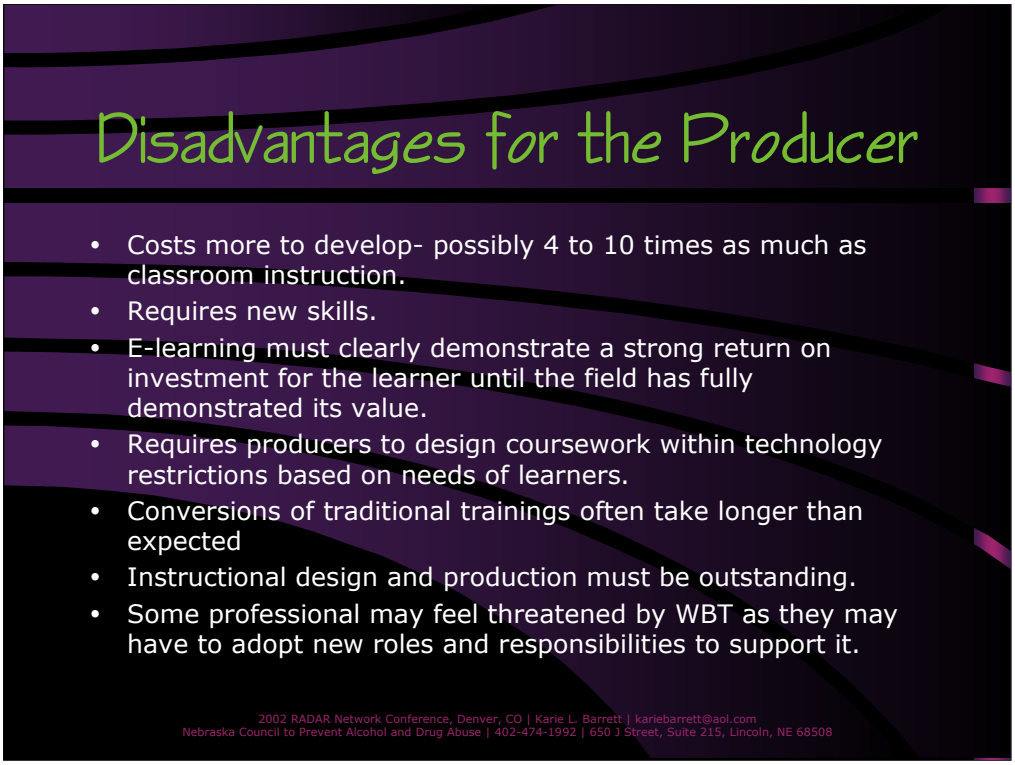
- Replicating classroom training- moving slide presentations, manuals, and video to the web.
- Doing too much too soon- trying to move all courses to the web at one time.
- Blind faith in technology or vendors- effective programs require careful analysis, design, and construction and cannot just be dumped into a template system.

With good design and careful development you can overcome most of the disadvantages and realize most of the advantages. WBT is best suited for teaching step-by-step procedures, scientific and business concepts, syntax and vocabulary of human and computer languages, and mechanical skills that must be performed speedily. WBT is not very well suited for soft skills, such as team leadership or dealing with difficult people, and psychomotor skills like dancing and playing sports.



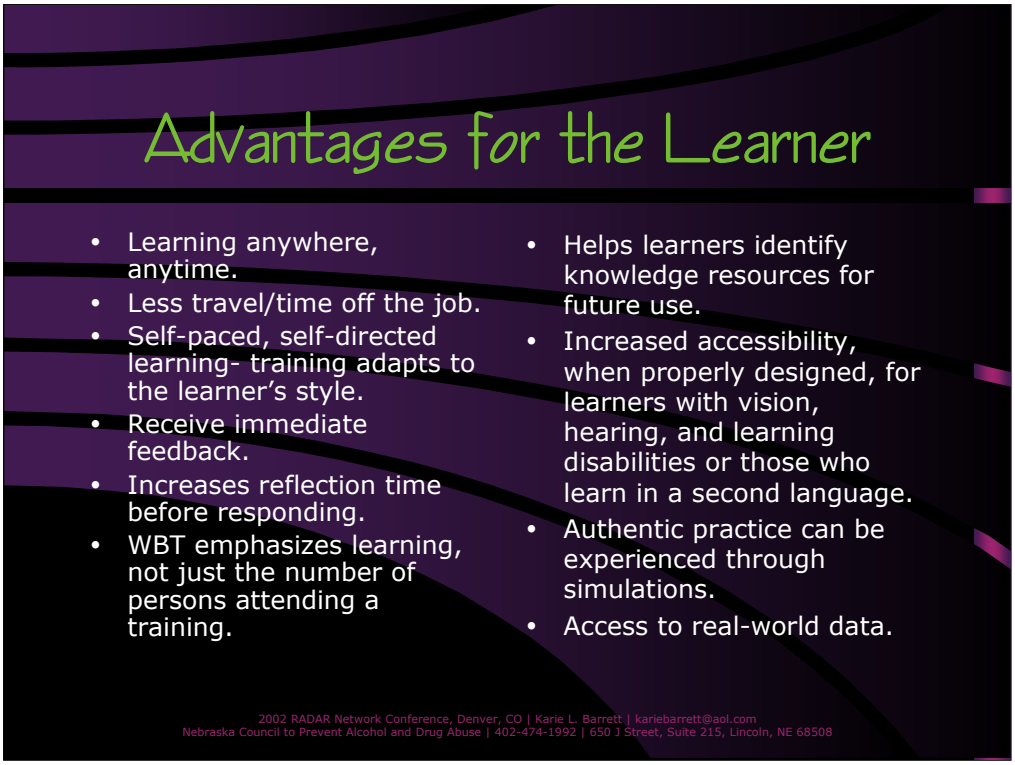
Advantages for the Producer

- Lower delivery costs once developed. Overall, WBT is 40-60% less expensive than traditional training. [2]
- Faster training delivery across a large audience.
- Fewer facilities required for delivery.
- No travel required for instructors or learners.
- E-learning captures knowledge that only existed in the brain of the instructor and makes it easier to refine and reuse.
- Course content can be dynamic.
- Instructors can check learners; facts and references quickly.
- Access to Web-based resources.
- Centralized storage and maintenance.
- Collaboration mechanisms.



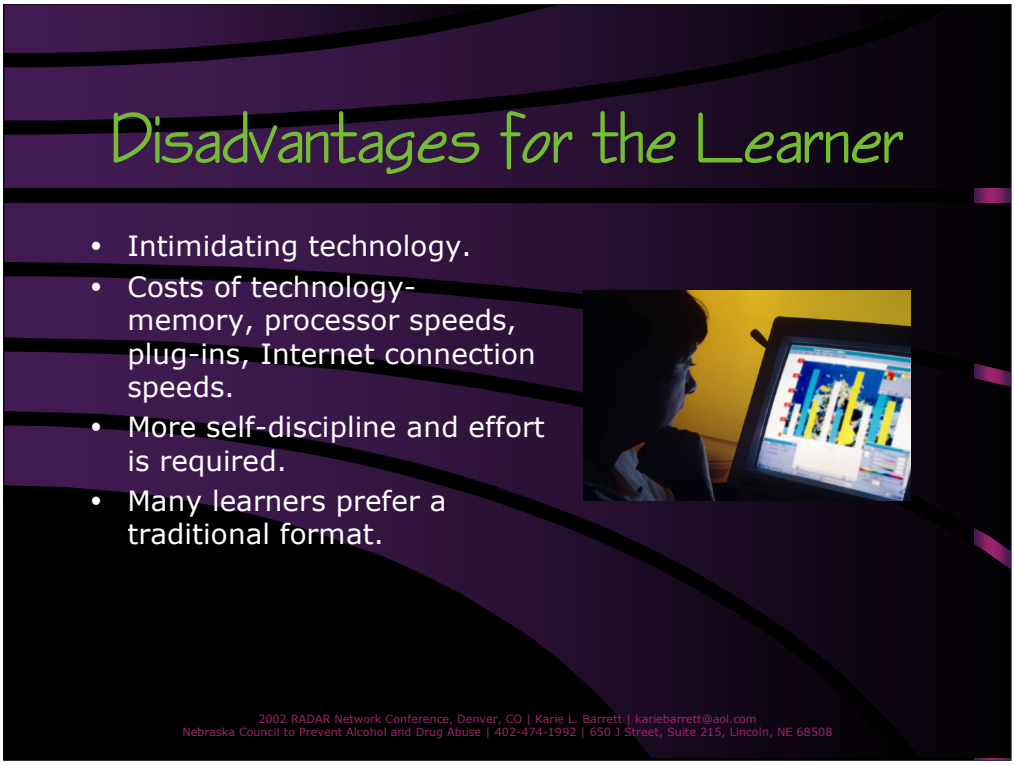
Disadvantages for the Producer

- Costs more to develop- possibly 4 to 10 times as much as classroom instruction.
- Requires new skills.
- E-learning must clearly demonstrate a strong return on investment for the learner until the field has fully demonstrated its value.
- Requires producers to design coursework within technology restrictions based on needs of learners.
- Conversions of traditional trainings often take longer than expected
- Instructional design and production must be outstanding.
- Some professional may feel threatened by WBT as they may have to adopt new roles and responsibilities to support it.



Advantages for the Learner

- Learning anywhere, anytime.
- Less travel and time off the job.
- Self-paced, self-directed learning (skip, skim, repeat)- training adapts to the learner's style.
- Receive immediate feedback.
- Access to real-world data.
- Increases reflection time before responding.
- WBT emphasizes learning, not just the number of persons attending a training.
- Helps learners identify knowledge resources for future use.
- Increased accessibility, when properly designed, for learners with vision, hearing, and learning disabilities or those who learn in a second language.
- Authentic practice can be experienced through simulations.

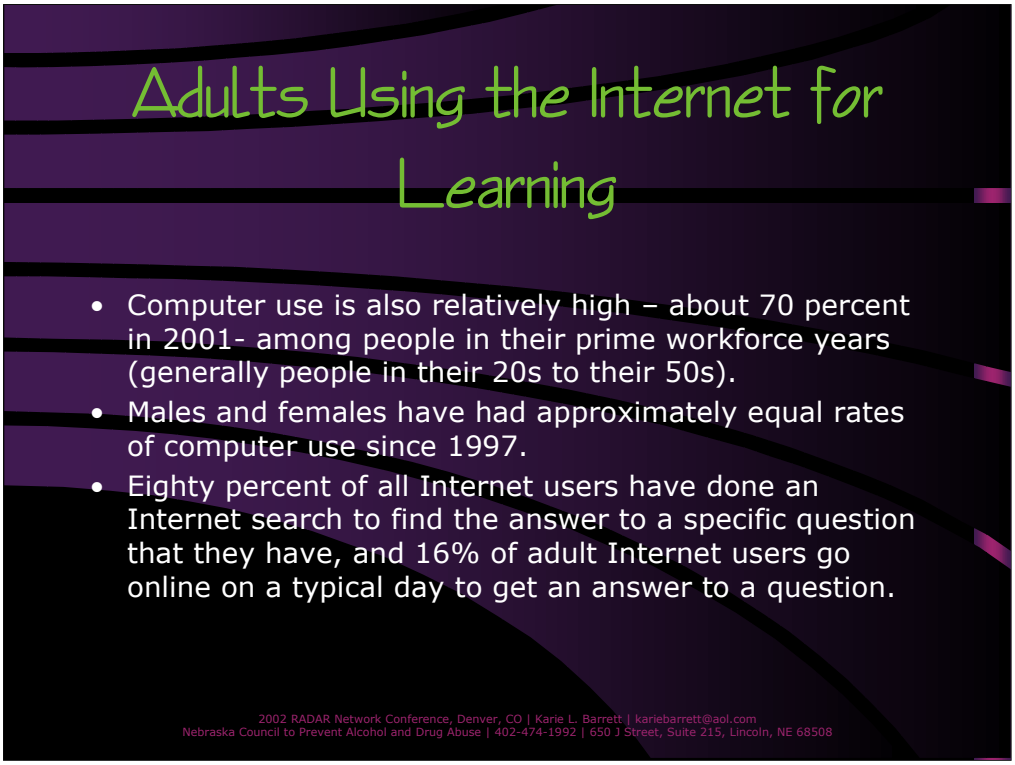


Disadvantages for the Learner

- Intimidating technology.
- Costs of technology- memory, processor speeds, plug-ins, Internet connection speeds.
- More self-discipline and effort is required.
- Many learners prefer a traditional format.

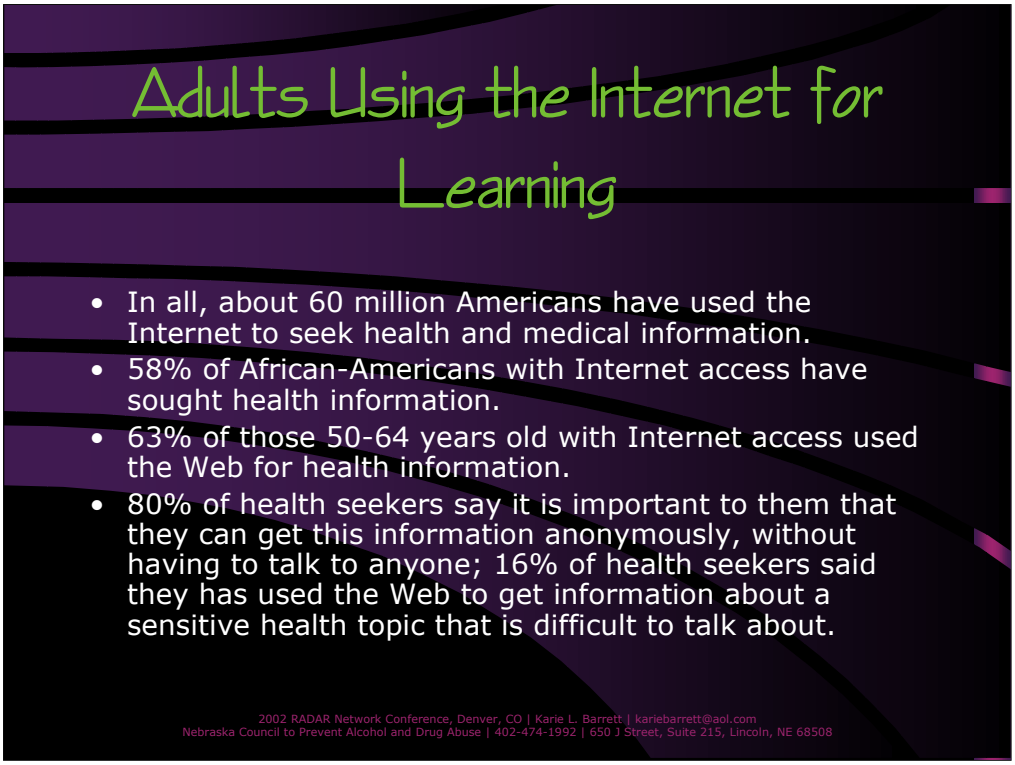
Who Are The Learners?

Increases in computer and Internet use have occurred across the entire age distribution and all income categories over time. [1] This is enabling both youth and adults to be WBT learners.



Adults Using the Internet for Learning

- Adults use the Internet to teach themselves new things or to satisfy their curiosity about a subject.
- Computer use is also relatively high – about 70 percent in 2001- among people in their prime workforce years (generally people in their 20s to their 50s). [1]
- Males and females have had approximately equal rates of computer use since 1997. [1]
- Eighty percent of all Internet users have done an Internet search to find the answer to a specific question that they have, and 16% of adult Internet users go online on a typical day to get an answer to a question. [11]



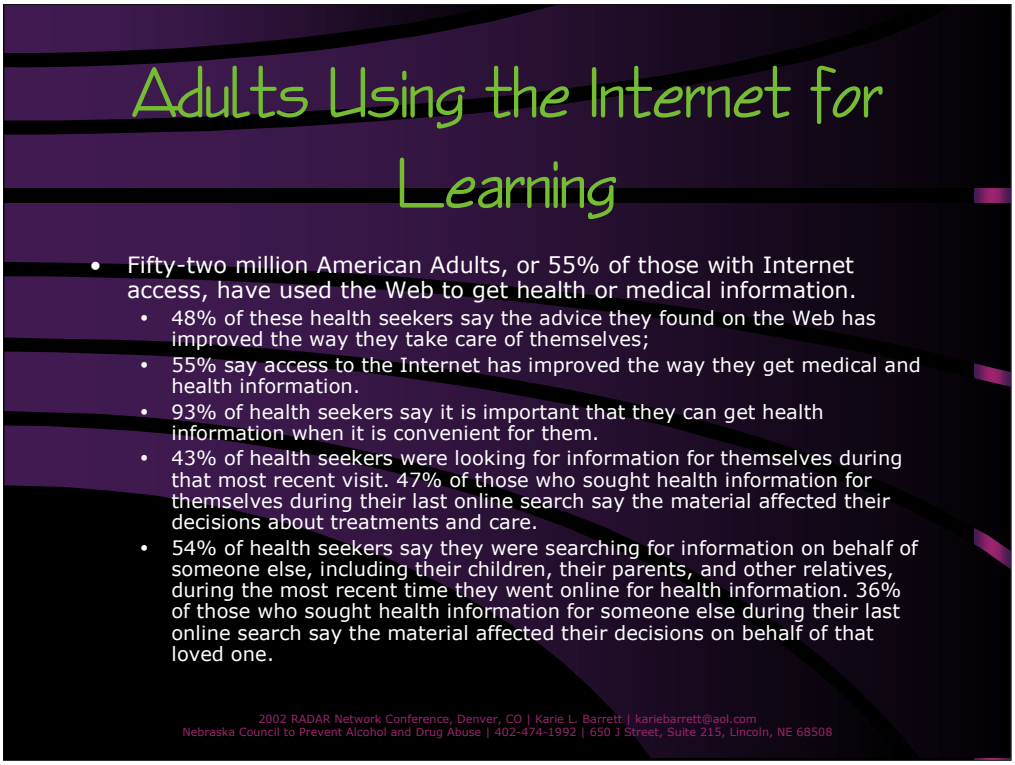
Adults Using the Internet for Learning- Health Information

- Accessing health information is still more popular among online women than men and it is one of the most serious activities that Internet newcomers pursue. In all, about 60 million Americans have used the Internet to seek health and medical information. [12]

- 58% of African-Americans with Internet access has sought health information. [12]

- The seeking of health information is also more popular among those in the 50-64 age bracket. Fully 63% of those that age with Internet access used the Web for health information. [6]

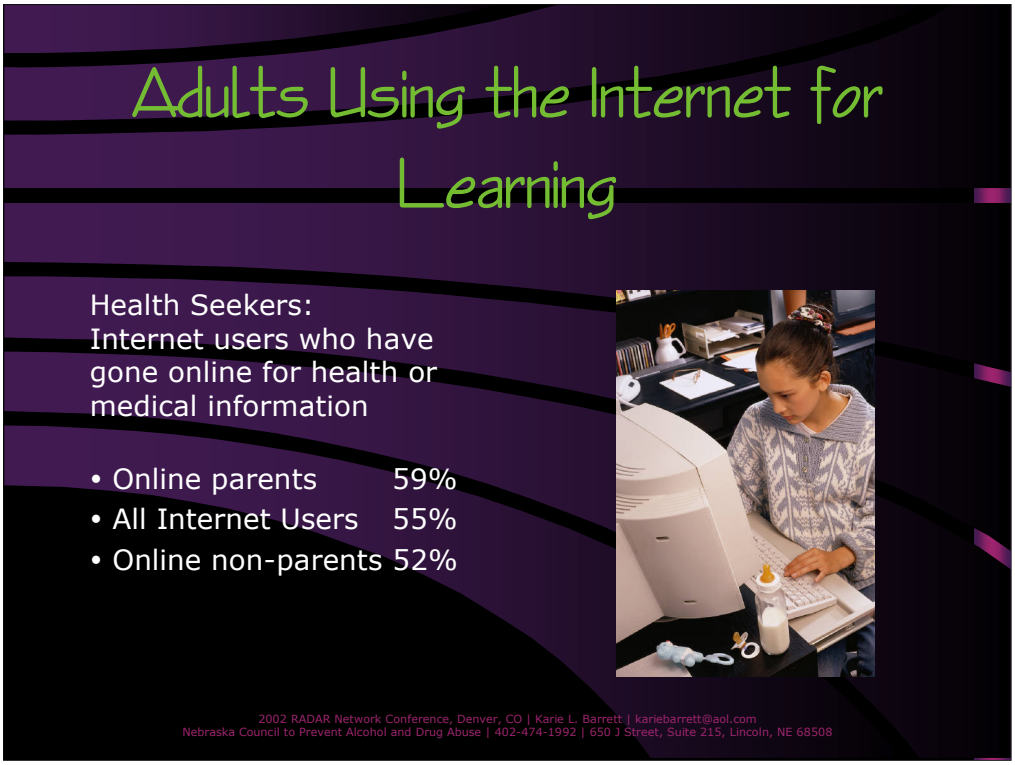
- 80% of health seekers say it is important to them that they can get this information anonymously, without having to talk to anyone; 16% of health seekers said they has used the Web to get information about a sensitive health topic that is difficult to talk about. [12]



Adults Using the Internet for Learning

Fifty-two million American Adults, or 55% of those with Internet access, have used the Web to get health or medical information. [12]

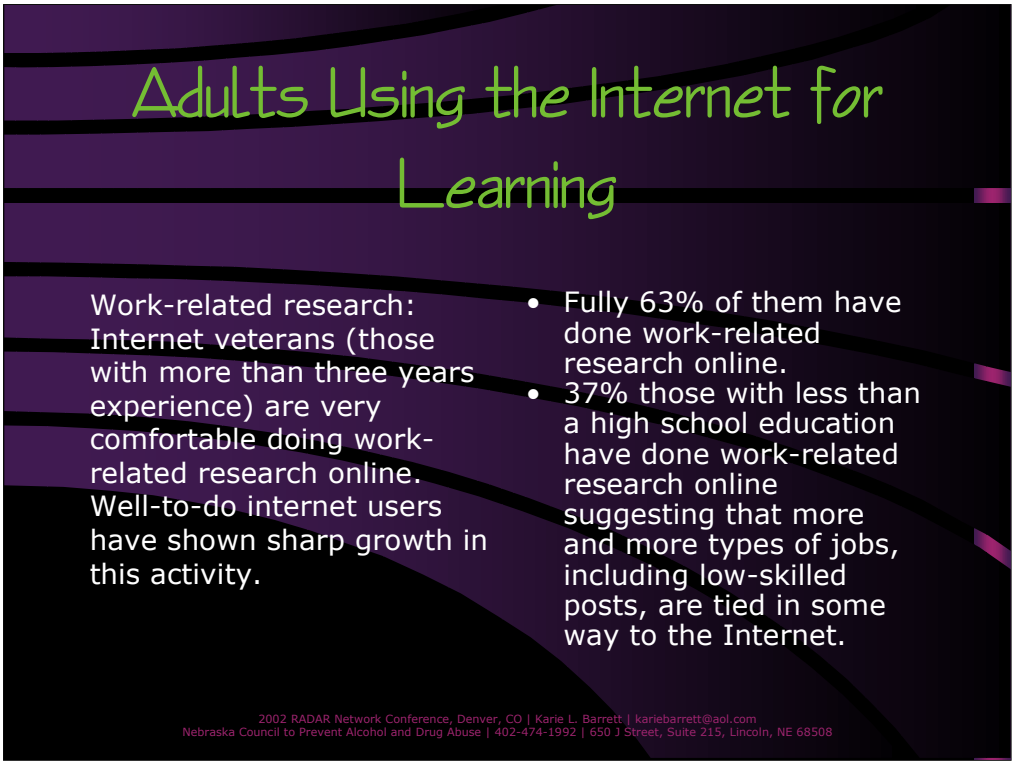
- 48% of these health seekers say the advice they found on the Web has improved the way they take care of themselves;
- 55% say access to the Internet has improved the way they get medical and health information.
- 93% of health seekers say it is important that they can get health information when it is convenient for them.
- 43% of health seekers were looking for information for themselves during that most recent visit. 47% of those who sought health information for themselves during their last online search say the material affected their decisions about treatments and care.
- 54% of health seekers say they were searching for information on behalf of someone else, including their children, their parents, and other relatives, during the most recent time they went online for health information. 36% of those who sought health information for someone else during their last online search say the material affected their decisions on behalf of that loved one.



Adults Using the Internet for Learning

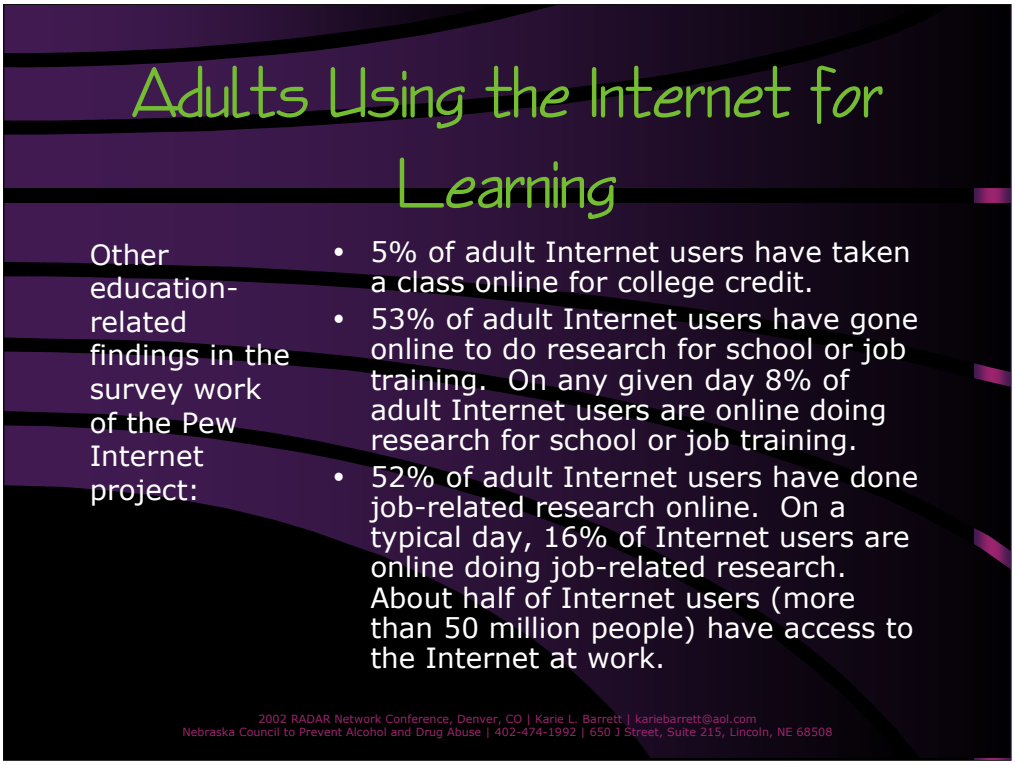
Health Seekers: Internet users who have gone online for health or medical information [12]

- Online parents 59%
- All Internet Users 55%
- Online non-parents 52%



Adults Using the Internet for Learning- Work-related Research

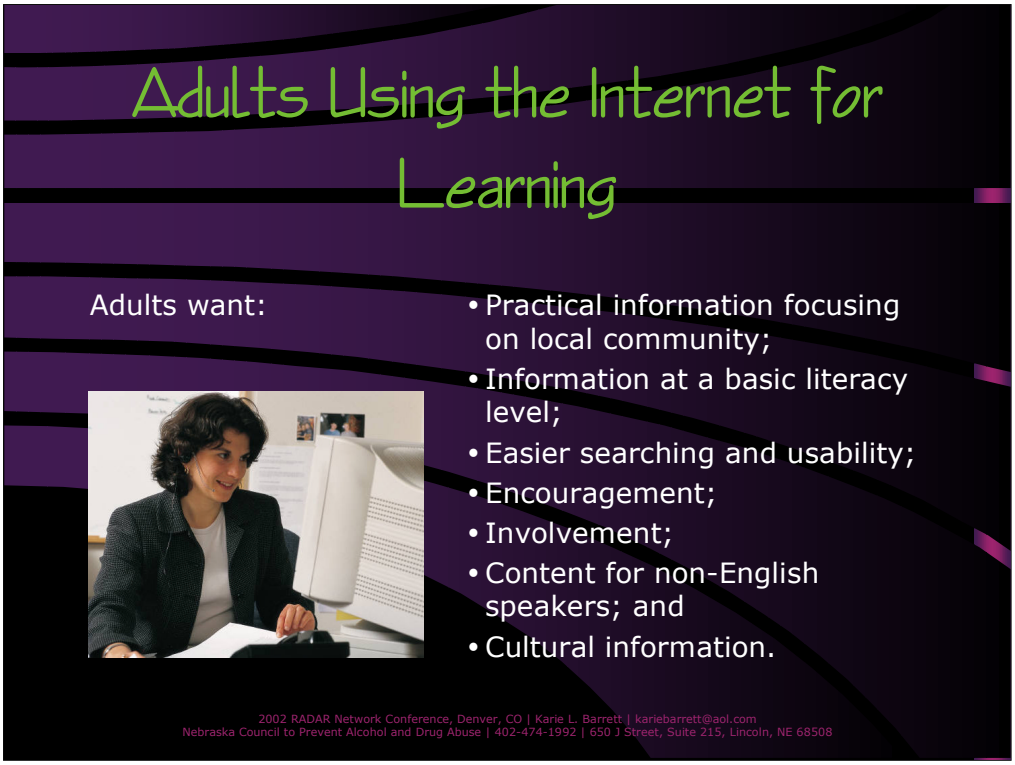
Internet veterans (those with more than three years experience) are very comfortable doing work-related research online. Well-to-do internet users have shown sharp growth in this activity. Fully 63% of them have done work-related research online. However, 37% those with less than a high school education have done work-related research online suggesting that more and more types of jobs, including low-skilled posts, are tied in some way to the Internet. [6]



Adults Using the Internet for Learning

Other education-related findings: [11]

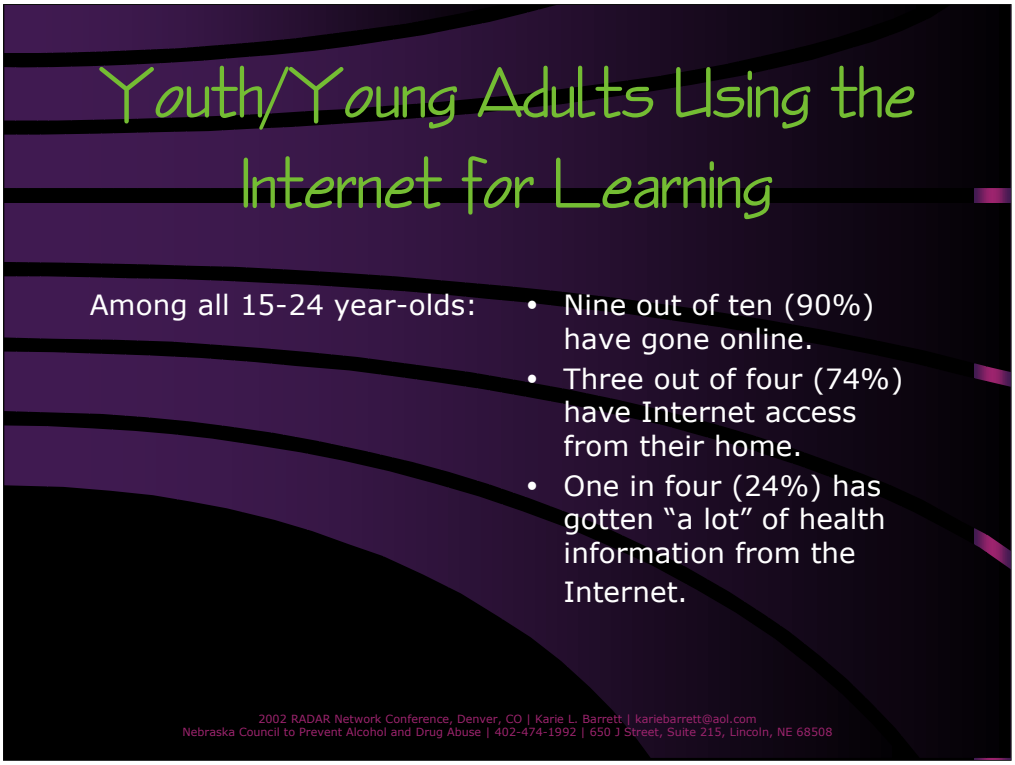
- 5% of adult Internet users have taken a class online for college credit.
- 53% of adult Internet users have gone online to do research for school or job training. On any given day 8% of adult Internet users are online doing research for school or job training.
- 52% of adult Internet users have done job-related research online. On a typical day, 16% of Internet users are online doing job-related research. About half of Internet users (more than 50 million people) have access to the Internet at work.



Adults Using the Internet for Learning

Adults want: [8]

- Practical information focusing on local community;
- Information at a basic literacy level;
- Easier searching and usability;
- Encouragement;
- Involvement;
- Content for non-English speakers; and
- Cultural information.

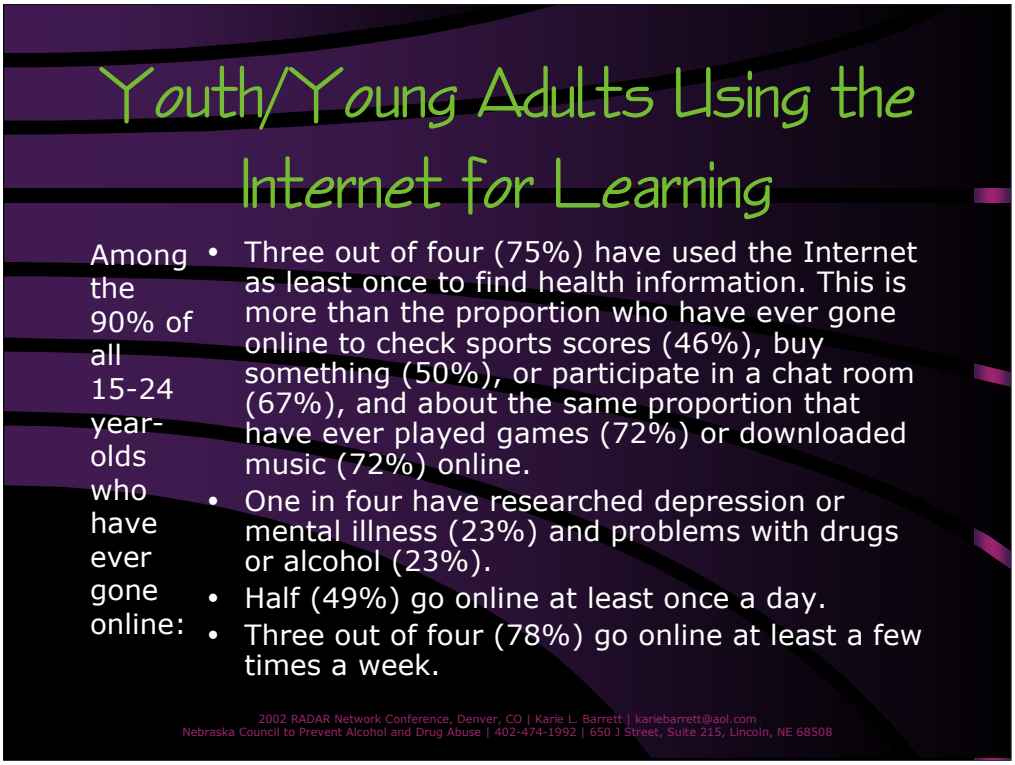


Youth and Young Adults Using the Internet for Learning

Youth/Young Adults, like adults, use the Internet to teach themselves new things or to satisfy their curiosity about a subject.

Among all 15-24 year-olds:[4]

- Nine out of ten (90%) have gone online.
- Three out of four (74%) have Internet access from their home.
- One in four (24%) has gotten "a lot" of health information from the Internet.



Youth and Young Adults Using the Internet for Learning

Among the 90% of all 15-24 year-olds who have ever gone online:[4]

Three out of four (75%) have used the Internet as least once to find health information. This is more than the proportion who have ever gone online to:

- check sports scores (46%),
- buy something (50%), or
- participate in a chat room (67%),

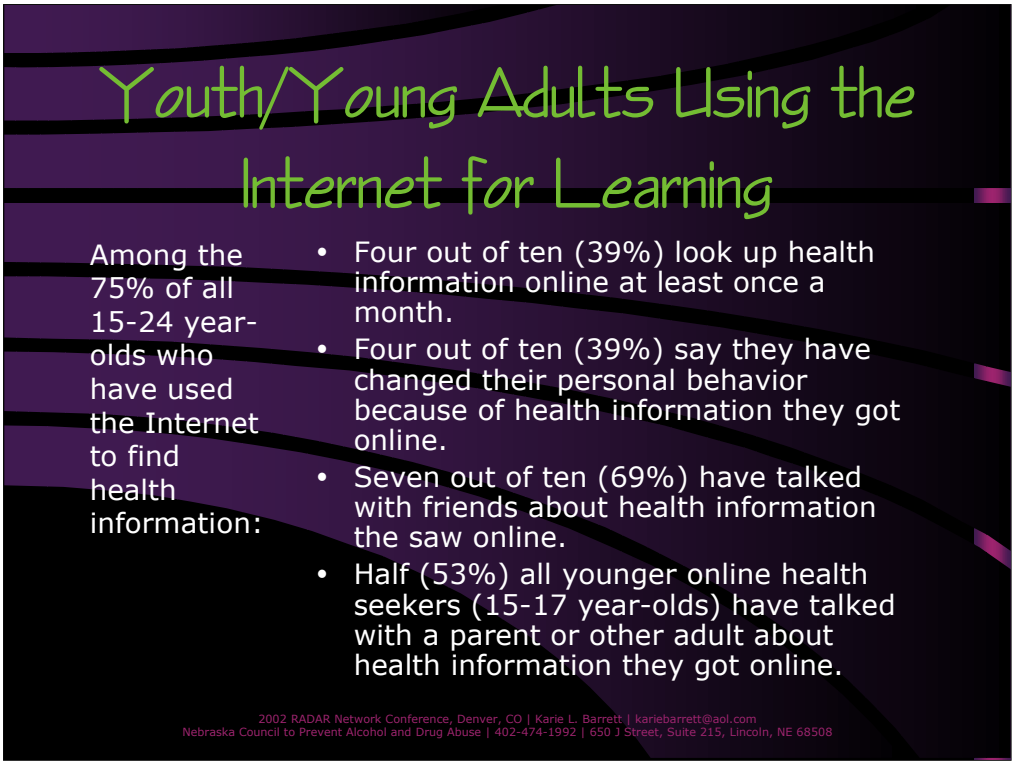
and about the same proportion that have ever:

- played games (72%) or
- downloaded music (72%) online.

One in four have researched depression or mental illness (23%) and problems with drugs or alcohol (23%).

Half (49%) go online at least once a day.

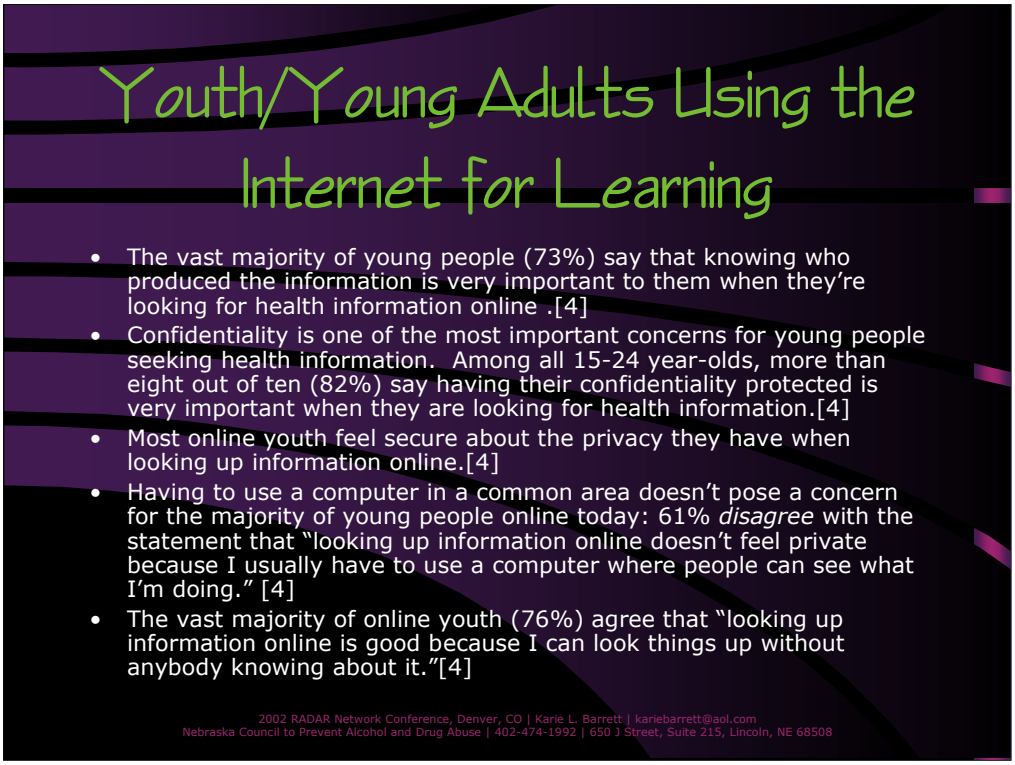
Three out of four (78%) go online at least a few times a week.



Youth and Young Adults Using the Internet for Learning

Among the 75% of all 15-24 year-olds who have used the Internet to find health information:[4]

- Four out of ten (39%) look up health information online at least once a month.
- Four out of ten (39%) say they have changed their personal behavior because of health information they got online.
- Seven out of ten (69%) have talked with friends about health information the saw online.
- Half (53%) all younger online health seekers (15-17 year-olds) have talked with a parent or other adult about health information they got online.



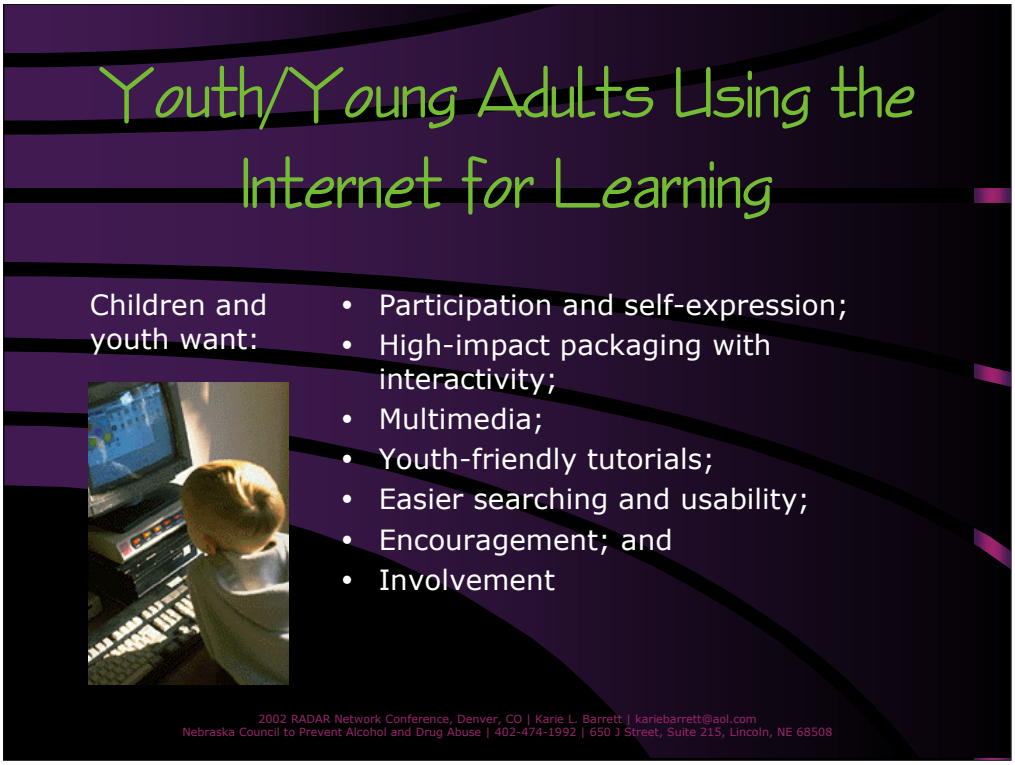
Youth and Young Adults Using the Internet for Learning

The vast majority of young people (73%) say that knowing who produced the information is very important to them when they're looking for health information online.[4]

Confidentiality is one of the most important concerns for young people seeking health information. Among all 15-24 year-olds, more than eight out of ten (82%) say having their confidentiality protected is very important when they are looking for health information.Most online youth feel secure about the privacy they have when looking up information online.[4]

Having to use a computer in a common area doesn't pose a concern for the majority of young people online today: 61% *disagree* with the statement that "looking up information online doesn't feel private because I usually have to use a computer where people can see what I'm doing." [4]

The vast majority of online youth (76%) agree that "looking up information online is good because I can look things up without anybody knowing about it."[4]



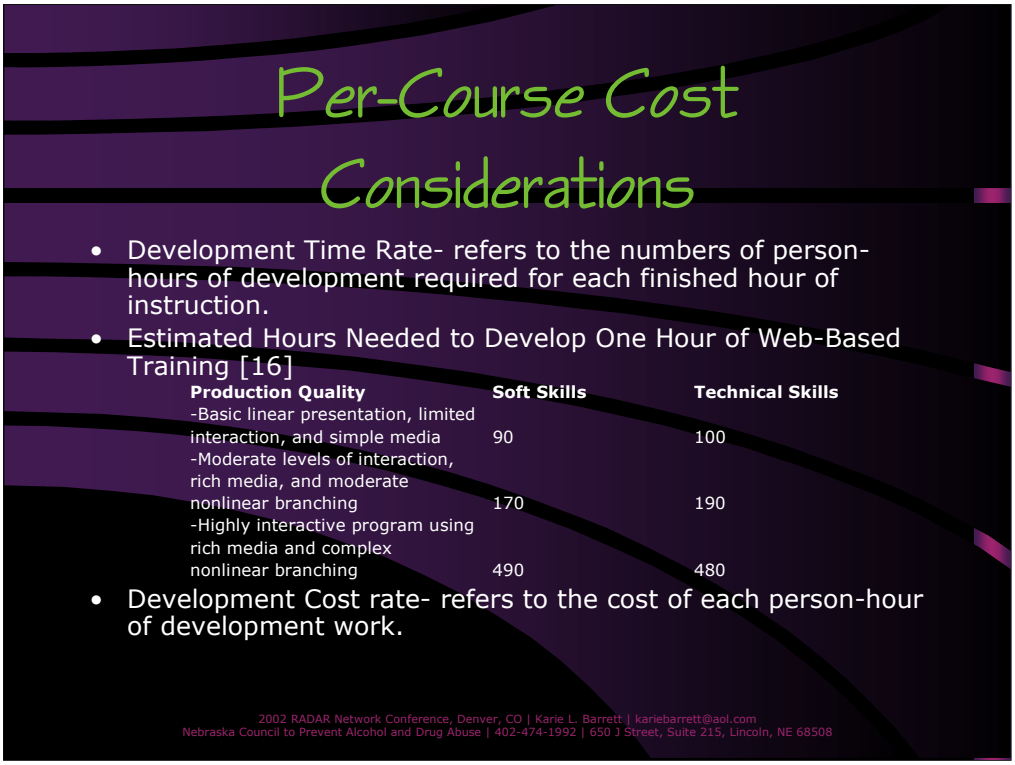
Youth and Young Adults Using the Internet for Learning

Children and youth want:[8]

- Participation and self-expression;
- High-impact packaging with interactivity;
- Multimedia;
- Youth-friendly tutorials;
- Easier searching and usability;
- Encouragement; and
- Involvement.

Cost Considerations

- Per-course Cost Considerations
- Total Per-course Costs
- Total Per-class Costs
- Total Per-learner Costs
- Return on Investment



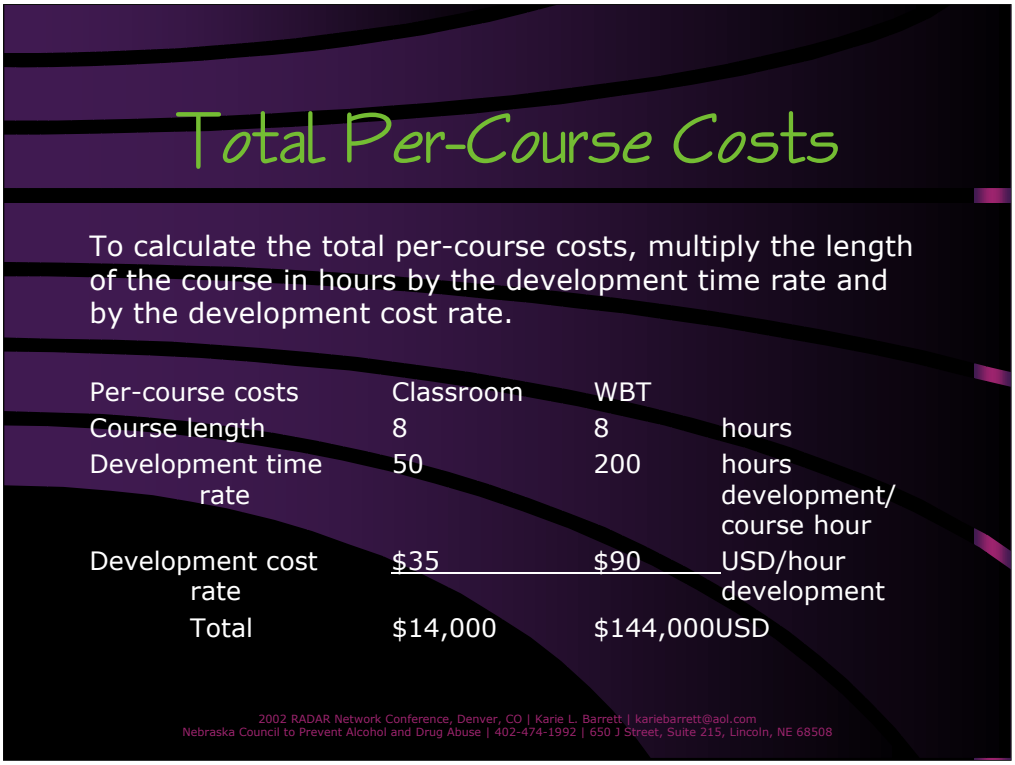
Per-course Cost Considerations

The Development Time Rate refers to the numbers of person-hours of development required for each finished hour of instruction. A general rule of thumb is to allow 200 person-hours per instruction-hour for development time.

*Estimated Hours Needed to Develop One Hour of Web-Based Training [16]

Production Quality	Soft Skills	Technical Skills
Basic linear presentation, limited interaction, and simple media	90	100
Moderate levels of interaction, rich media, and moderate nonlinear branching	170	190
Highly interactive program using rich media and complex nonlinear branching	490	480

The Development Cost Rate refers to the cost of each person-hour of development work. Rates range from $50 to $200 USD for work done in the United States.



Total Per-course Costs

To calculate the total per-course costs, multiply the length of the course in hours by the development time rate and by the development cost rate.

Per-course costs	**Classroom**	**WBT**	
Course length	8	8	hours
Development time rate	50	200	hours development/ course hour
Development cost rate	$35	$90	USD/hour development
Total	$14,000	$144,000	

Total Per-class Costs

To calculate the per-class costs we just multiply the per-class cost by the number of classes.

Per-class costs	Classroom	WBT	
Instructor salary	$280	$280	USD
Instructor travel	$1,500	-	USD
Facilities	$250	$50	USD
Subtotal (per class)	$2,030	$330	USD
Class size	20	20	learners
Number of learners	200	200	learners
Number of classes	10	10	classes
Total class costs	$20,300	$3,300	USD

Total Per-learner Costs

To calculate the per-learner costs, add up the learner's travel costs and salary and the instructor's salary costs and then multiply the total times the number of learners.

Per-learner Costs	Classroom	WBT	
Learner's travel costs	$1,500	-	USD
Learner's salary	$280	$140	USD
Instructor's salary	$14	$14	USD
Subtotal (per learner)	$1,794	$154	USD
Number of learners	200	200	learners
Total learner costs	$358,800	$30,800	USD
Total Costs			
Per-course costs	$14,000	$144,000	USD
Per-class costs	$20,300	$3,300	USD
Per-learner costs	$358,800	$30,800	USD
Total costs	$393,100	$178,100	USD

In our example, WBT saves $215,000 over classroom training.

Return on Investment

Many organizations evaluate proposed projects based on their return on investment.

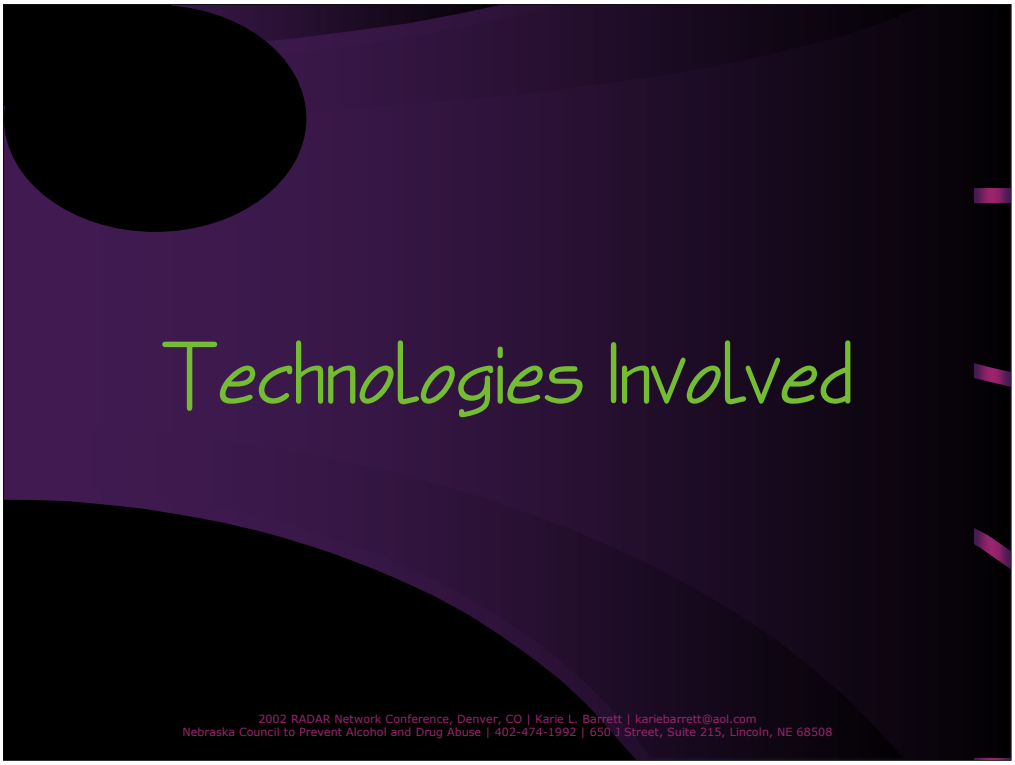
$$ROI = \frac{\text{(Total costs for classroom training) - (Total costs for WBT)}}{\text{(Development costs for WBT)) - (Development costs for classroom training)}}$$

$$= \frac{\$393{,}100 - \$178{,}100}{\$144{,}000 - \$14{,}000}$$

$$= \frac{\$215{,}000}{\$130{,}000}$$

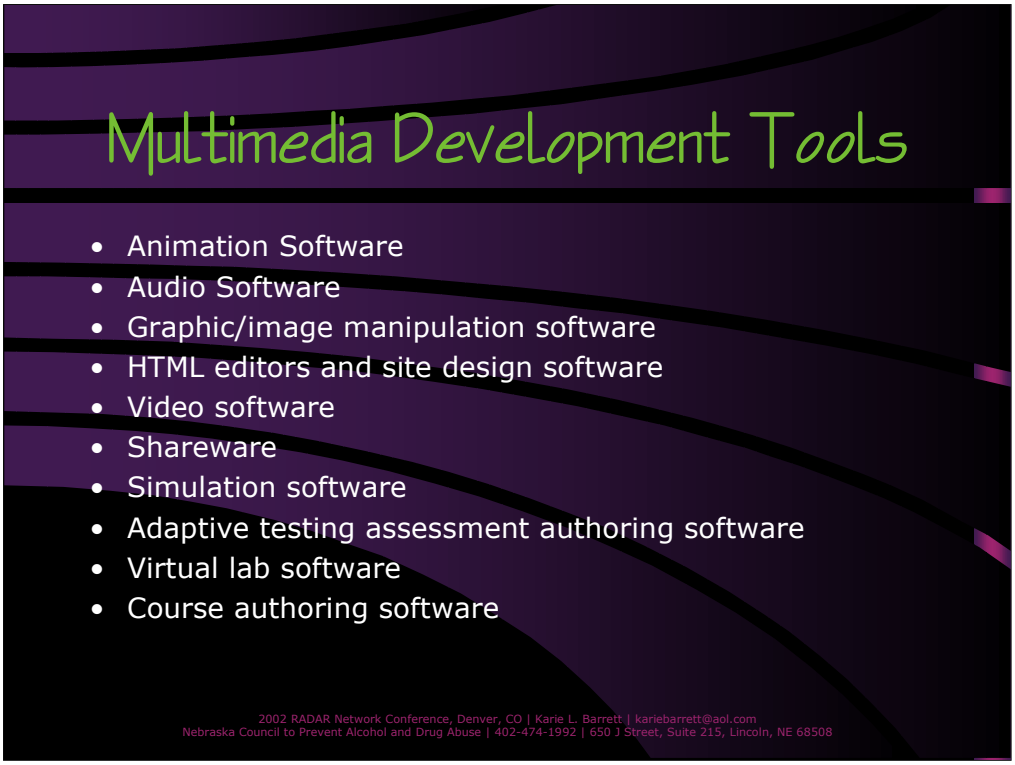
$$= 165\%$$

The ROI of 165% demonstrated in our example is outstanding and not impossible as we have utilized averages of common expenses and revenues in our calculations.



Technologies Involved

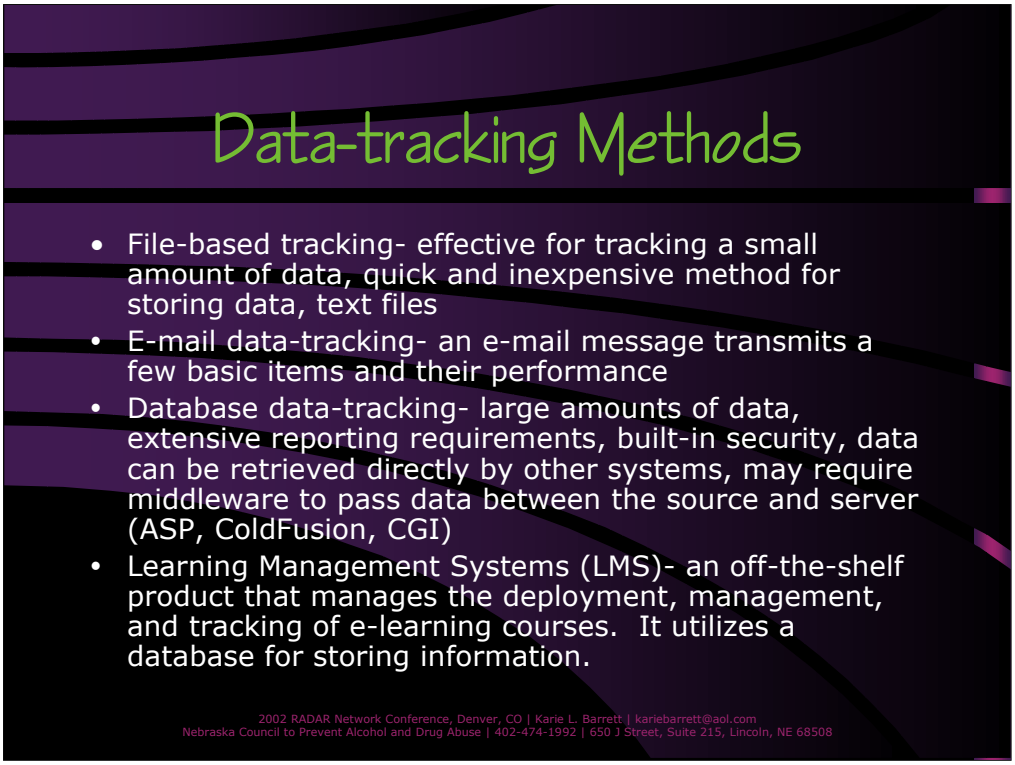
- Multimedia Development Tools
- Data-tracking
- E-learning Delivery Platforms
- Learning Management Systems
- Learning Content Systems



Multimedia Development Tools

(See "Technologies Involved" and "A Comparision of Macromedia Products" Handouts)

- Animation Software
- Audio Software
- Graphic/image manipulation software
- HTML editors and site design software
- Video software
- Shareware
- Simulation software
- Adaptive testing assessment authoring software
- Virtual lab software
- Course authoring software

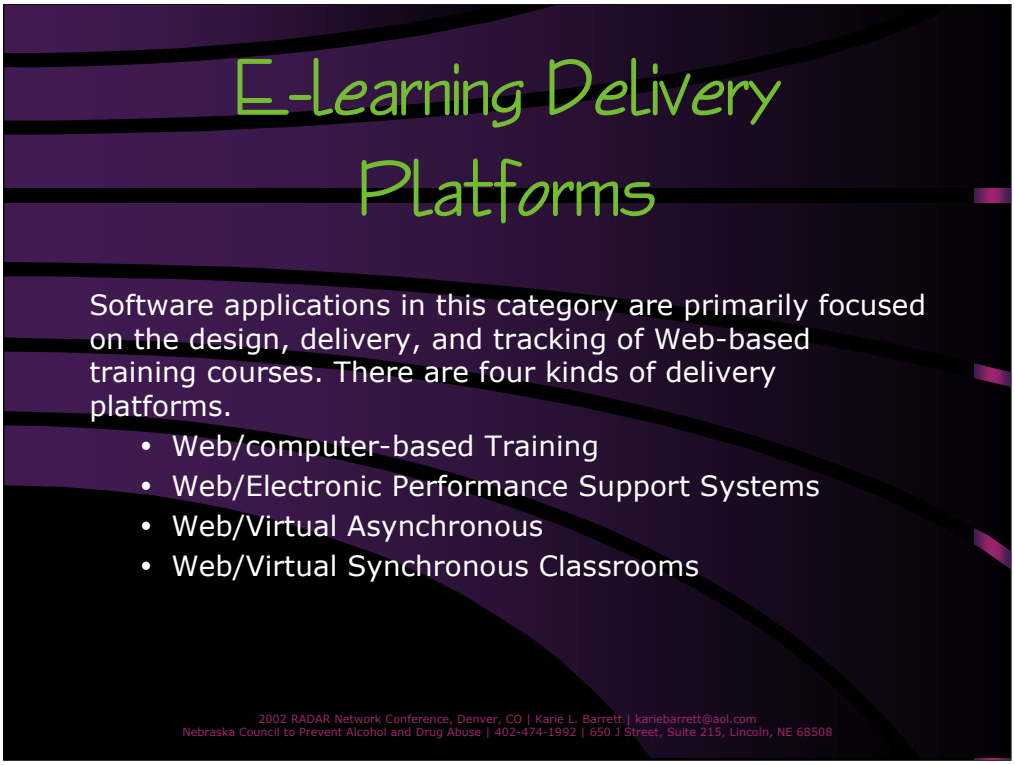


Data-tracking Methods

(See "Data-tracking Methods" Handout)

You may need to collect many types of information about your online course to meet various internal and external requirements. You may need to collect learner performance data and/or course evaluation data to meet these requirements.

- File-based tracking- effective for tracking a small amount of data, quick and inexpensive method for storing data, text files
- E-mail data-tracking- an e-mail message transmits a few basic items and their performance
- Database data-tracking- large amounts of data, extensive reporting requirements, built-in security, data can be retrieved directly by other systems, may require middleware to pass data between the source and server (ASP, ColdFusion, CGI)
- Learning Management Systems (LMS)- an off-the-shelf product that manages the deployment, management, and tracking of e-learning courses. It utilizes a database for storing information.



E-learning Delivery Platforms

This is the oldest e-learning technology category. Software applications in this category are primarily focused on the design, delivery, and tracking of Web-based training courses. (Shareware to $50K) There are four kinds of delivery platforms.

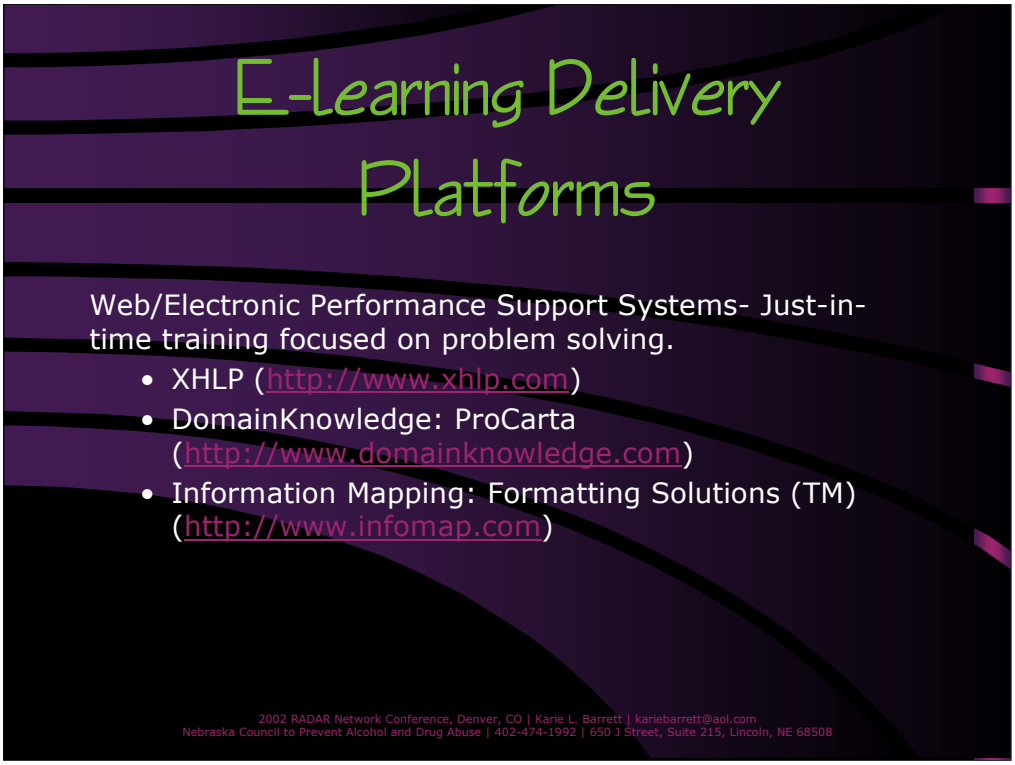
- Web/computer-based Training
- Web/Electronic Performance Support Systems
- Web/Virtual Asynchronous Classrooms
- Web/Virtual Synchronous Classrooms

E-learning Delivery Platforms:

Web/computer-based Training

Individual learning that features drill-and-practice, simulations, reading, questioning, and answering.

- QuelSys: SocratEase (www.socratease.com)
- Convene.com IZIO (www.convene.com)
- Serf (www.serfsoft.com)

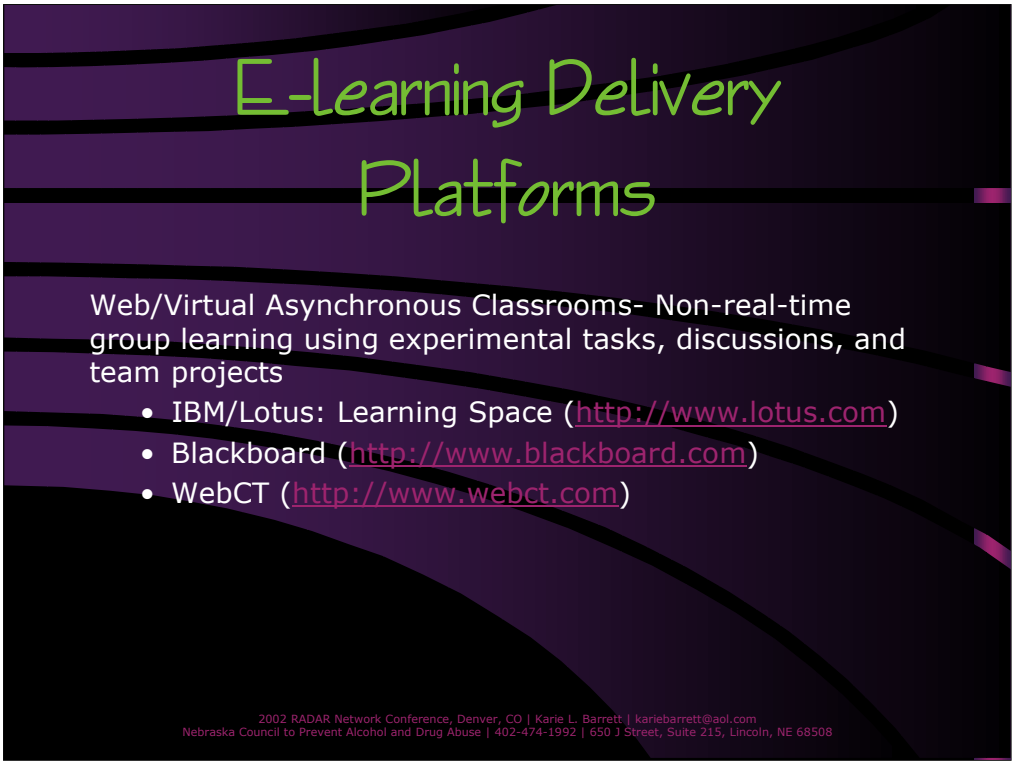


E-learning Delivery Platforms:

Web/Electronic Performance Support Systems

Just-in-time training focused on problem solving.

- XHLP (www.xhlp.com)
- DomainKnowledge: ProCarta (www.domainknowledge.com)
- Information Mapping: Formatting Solutions (TM) (www.infomap.com)

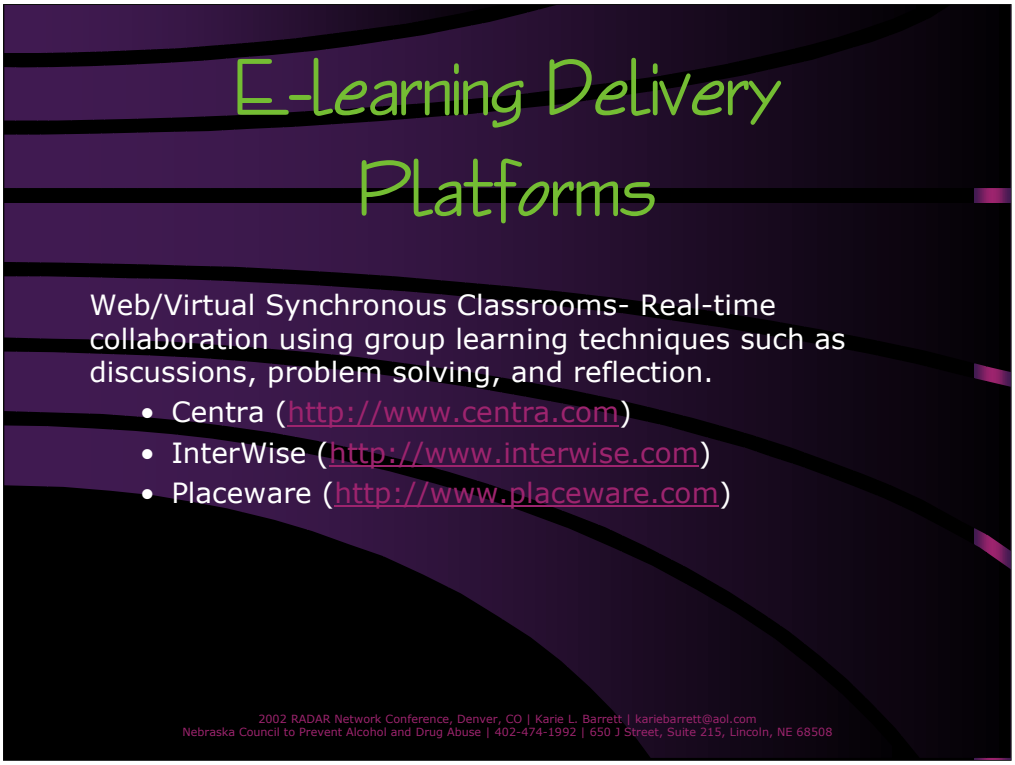


E-learning Delivery Platforms:

Web/Virtual Synchronous Classrooms

Real-time collaboration using group learning techniques such as discussions, problem solving, and reflection.

- Centra (www.centra.com)
- InterWise (www.interwise.com)
- Placeware (www.placeware.com)



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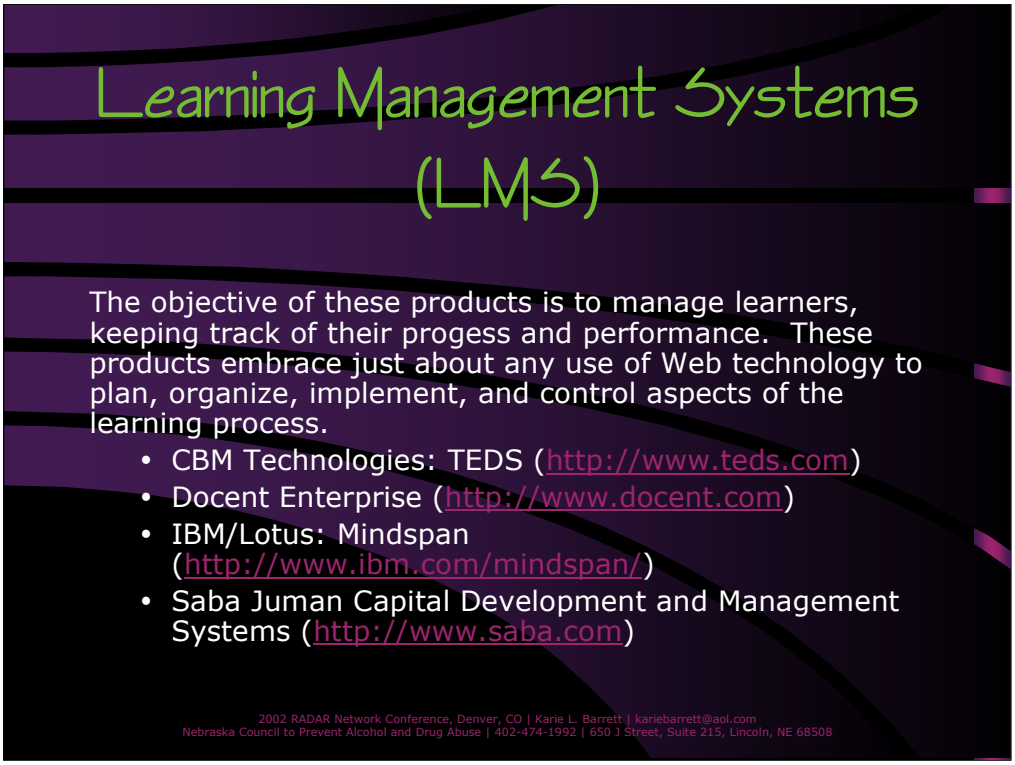


Learning Management Systems (LMS)

The objective of these products is to manage learners, keeping track of their progess and performance. These products embrace just about any use of Web technology to plan, organize, implement, and control aspects of the learning process. ($20K to $90K)

- CBM Technologies: TEDS (www.teds.com)
- Docent Enterprise (www.docent.com)
- IBM/Lotus: Mindspan (www.ibm.com/mindspan/)
- Saba Juman Capital Development and Management Systems (www.saba.com)

Learning Content Management Systems (LCMS)

The newest software application for e-learning, these systems label, track, and manage learning objects and then organize them for delivery in infinite combinations. These systems are purchased in addition to e-learning delivery platforms and as complements to a learning management system. Most LCMS have built-in LMS functionality. ($90K to $1M)

- Avaltus (www.paybacktraining.com)
- Global Knowledge (http://kp.globalknowledge.com)
- Knowledge Mechanics (www.knowledgemechanics.com)
- LeadingWay Knowledge Systems (www.leadingway.com)
- WBT Systems (www.wbtsystems.com)

Getting Started

1. Assembling Your Design Team
2. Setting Goals
3. Reanalyzing Learners
4. Specifying the Course
5. Converting the Materials
6. Evaluating a Prototype
7. Redesign Based on Feedback

1. Assembling Your Design Team

Project Manager- scheduling, budget management, coordinate specialists, set project standards

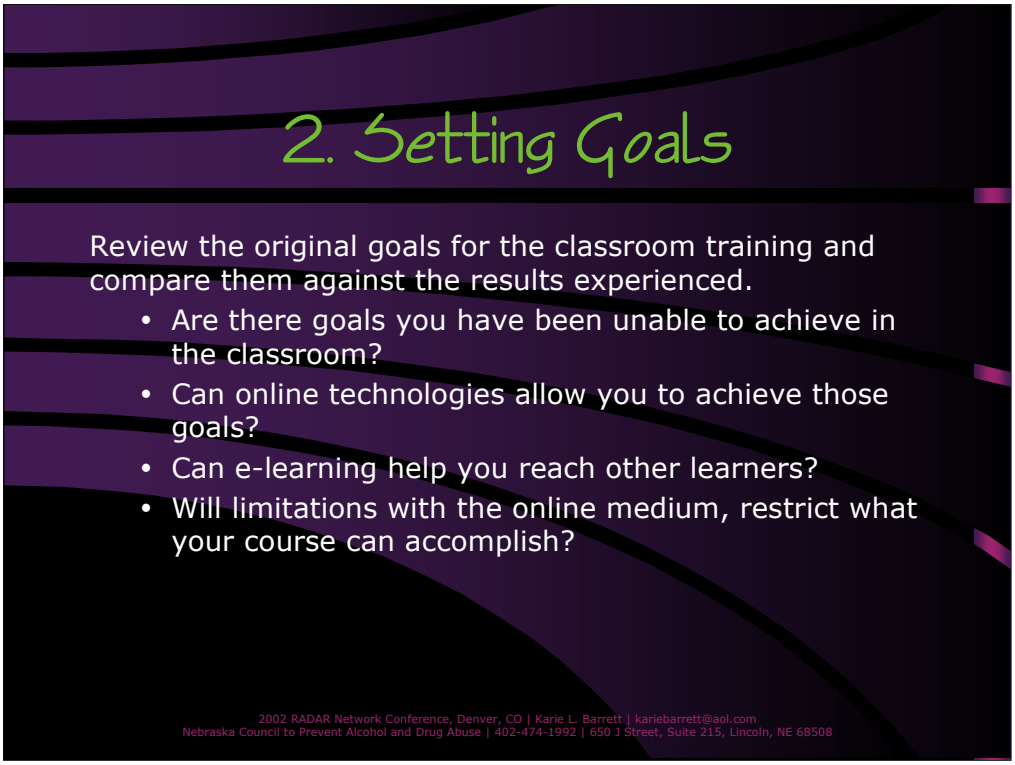
Courseware Developer/Webmaster- use sophisticated authoring software, creating templates and reusable objects, using and writing behaviors, creating and including applets and controls

Instructional Designer/Subject-Matter Expert/Instructors- conducts need assessment, selects most appropriate form of WBT, designs lessons, develops blueprints

Technology Integration Specialist/System Manager/Programmer- identify needed technologies, select products to implement them, get everything working together

Visual Designer/Graphic Artist/Webmaster- design page layouts specify colors, design navigation buttons and icons, create logos and other emblems, and draw graphics for content

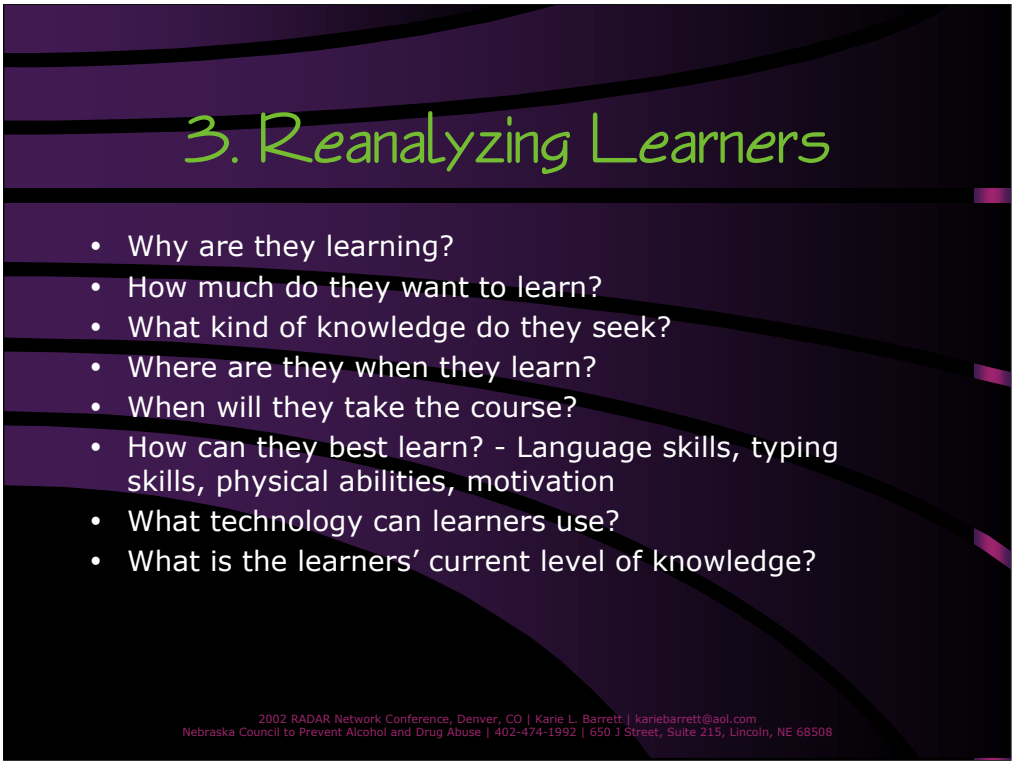
Multimedia Developer/Webmaster- record and edit audio and video components, create animations, specify visual transitions, and integrate and synchronize all these separate media elements



2. Setting Goals

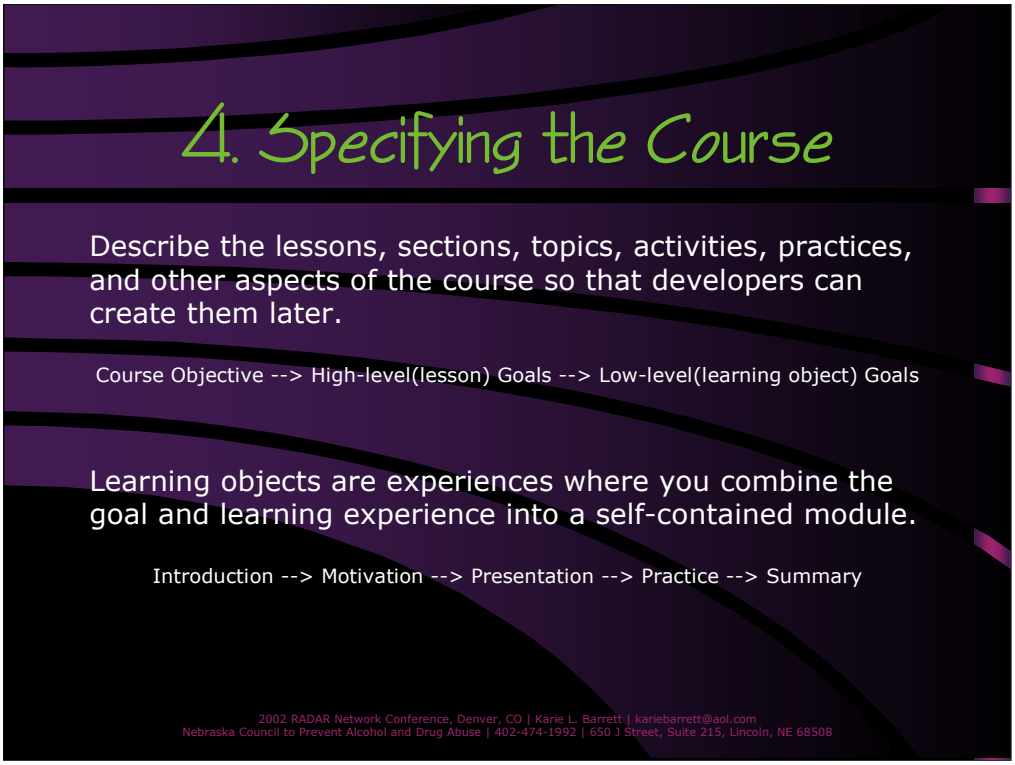
Review the original goals for the classroom training and compare them against the results experienced.

- Are there goals you have been unable to achieve in the classroom?
- Can online technologies allow you to achieve those goals?
- Can e-learning help you reach other learners?
- Will limitations with the online medium, restrict what your course can accomplish?



3. Reanalyzing Learners

- Why are they learning?
- How much do they want to learn?
- What kind of knowledge do they seek?
- Where are they when they learn?
- When will they take the course?
- How can they best learn? - Language skills, typing skills, physical abilities, motivation
- What technology can learners use?
- What is the learners' current level of knowledge?



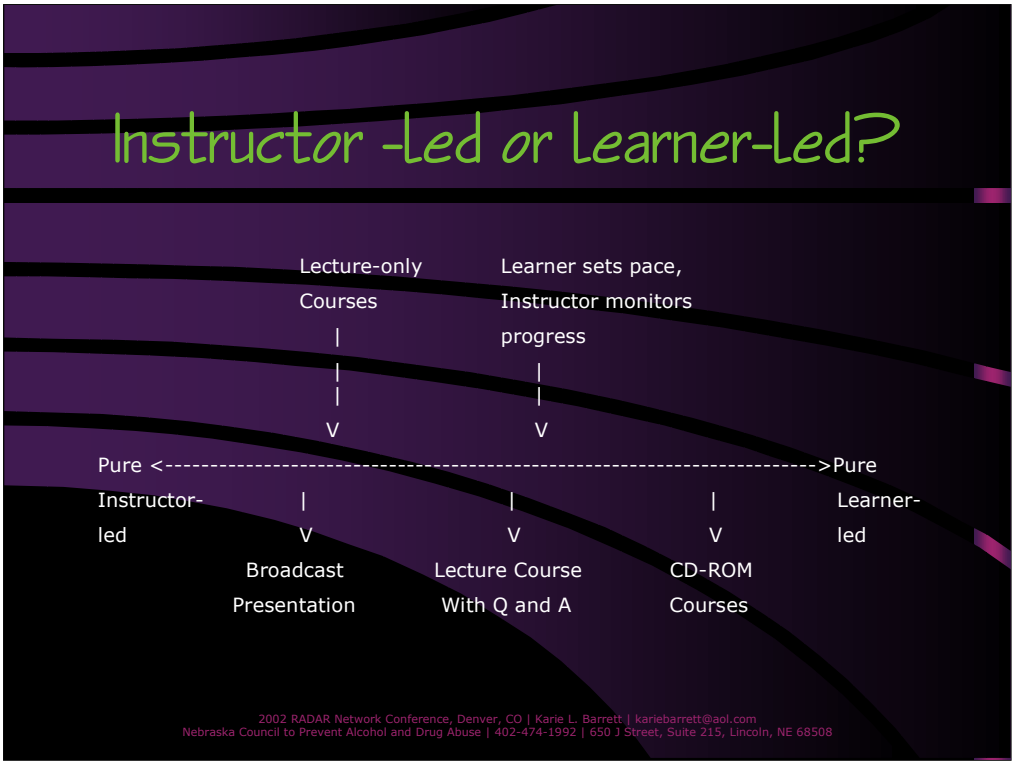
4. Specifying the Course

Describe the lessons, sections, topics, activities, practices, and other aspects of the course so that developers can create them later.

Course Objective ---> high-level Goals ---> Low-level Goals
(lesson) (learning object)

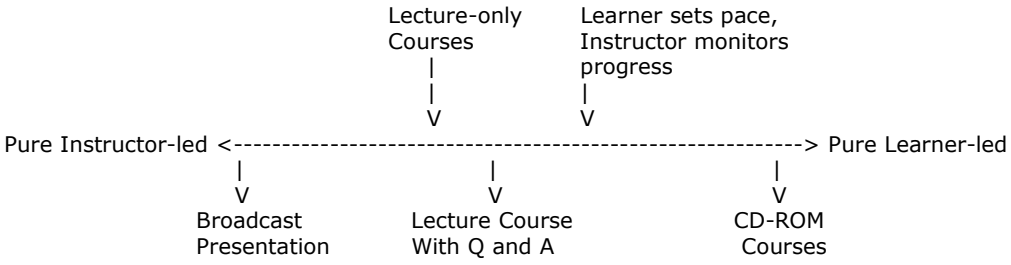
Learning objects are experiences where you combine the goal and learning experience into a self-contained module.

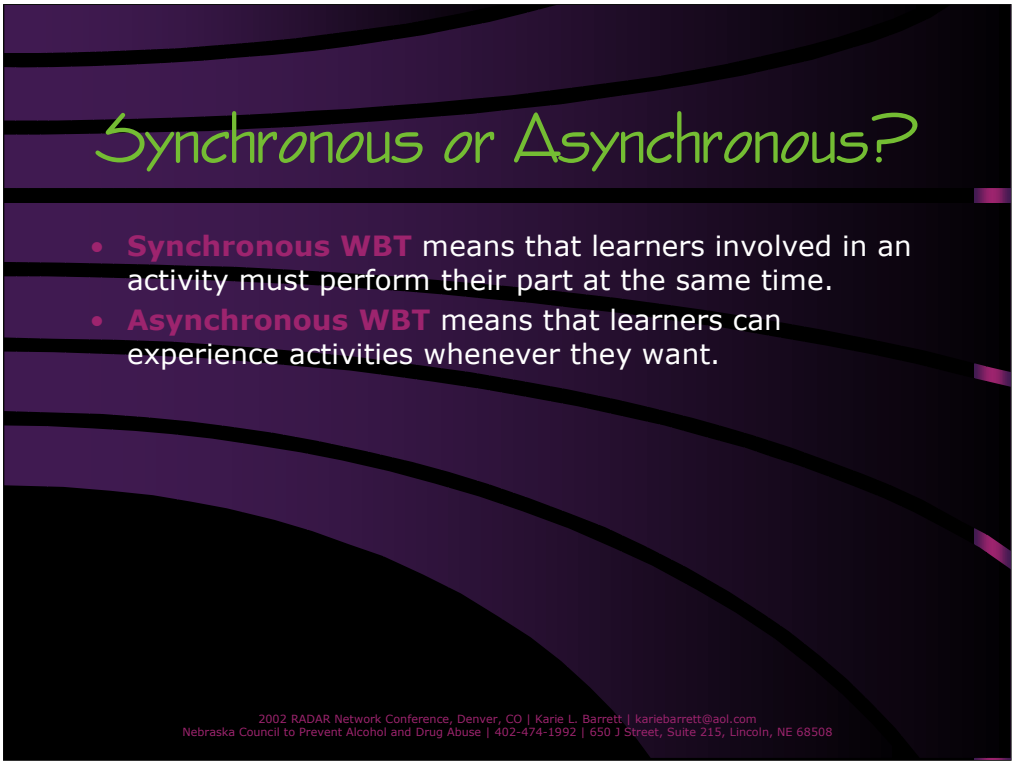
Introduction ---> Motivation ---> Presentation ---> Practice ---> Summary



Instructor -led or learner-led?

WBT gives us the choice to who leads: the instructor or individual learners. This choice is actually not limited to pure instructor-led or learner-led forms. There is a spectrum of possibilities between the two extremes.



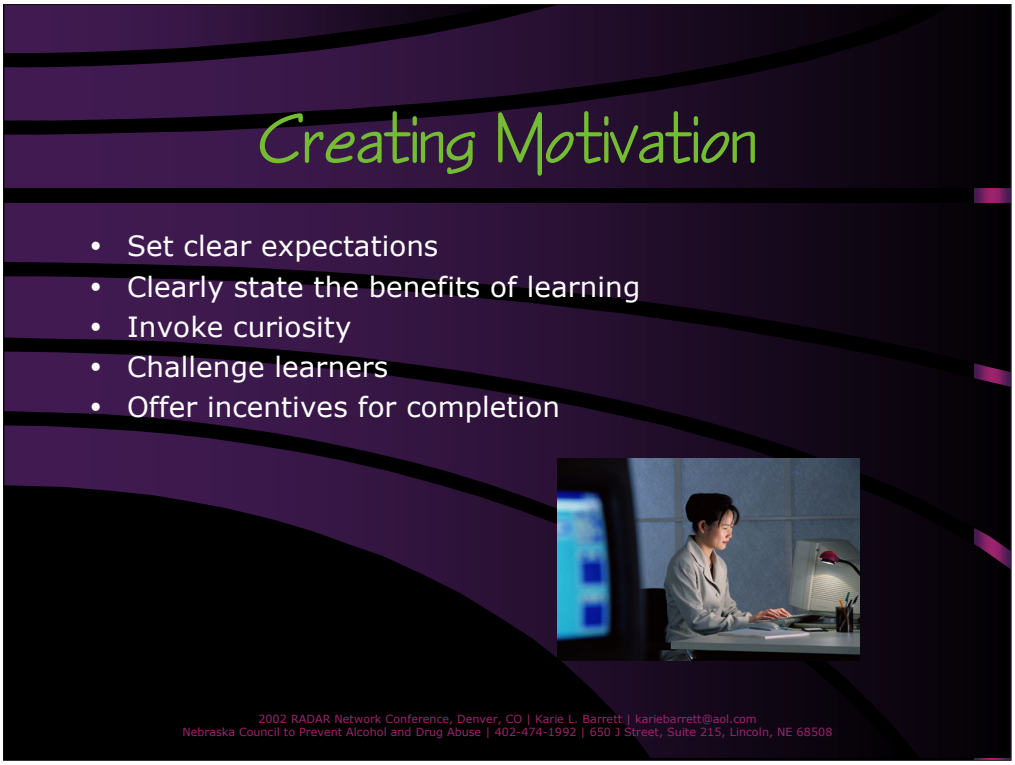


Synchronous or Asynchronous?

The terms synchronous and asynchronous apply best to individual events and activities than to most whole courses.

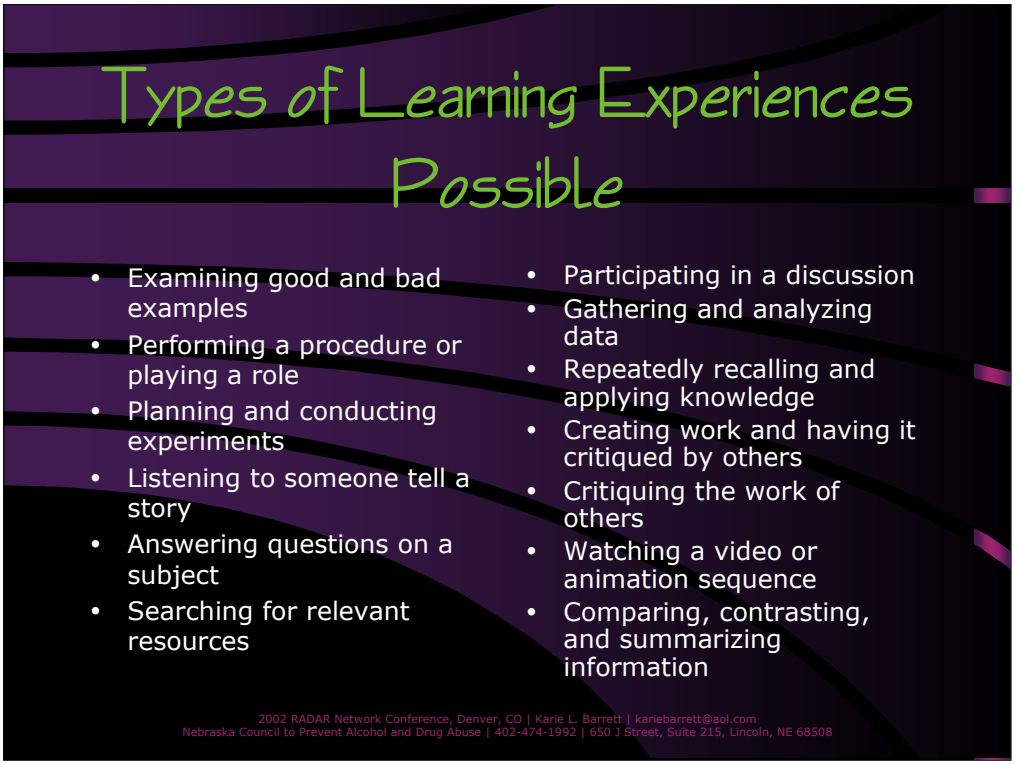
Synchronous WBT means that learners involved in an activity must perform their part at the same time. Examples of synchronous activities include chat sessions, screen-sharing, whiteboard sessions, and videoconferences. Synchronous activities are best used when learners need to discuss issues with other learners at length, need the motivation of scheduled events reinforced by peer pressure, and when most learners share the same needs and have the same questions.

Asynchronous WBT means that learners can experience activities whenever they want. Examples of asynchronous activities include permanently posted web pages and automatically scored tests. Asynchronous activities are best used when learners are from a wide span of time zones, have inflexible or unpredictable work schedules, or have unique individual needs.



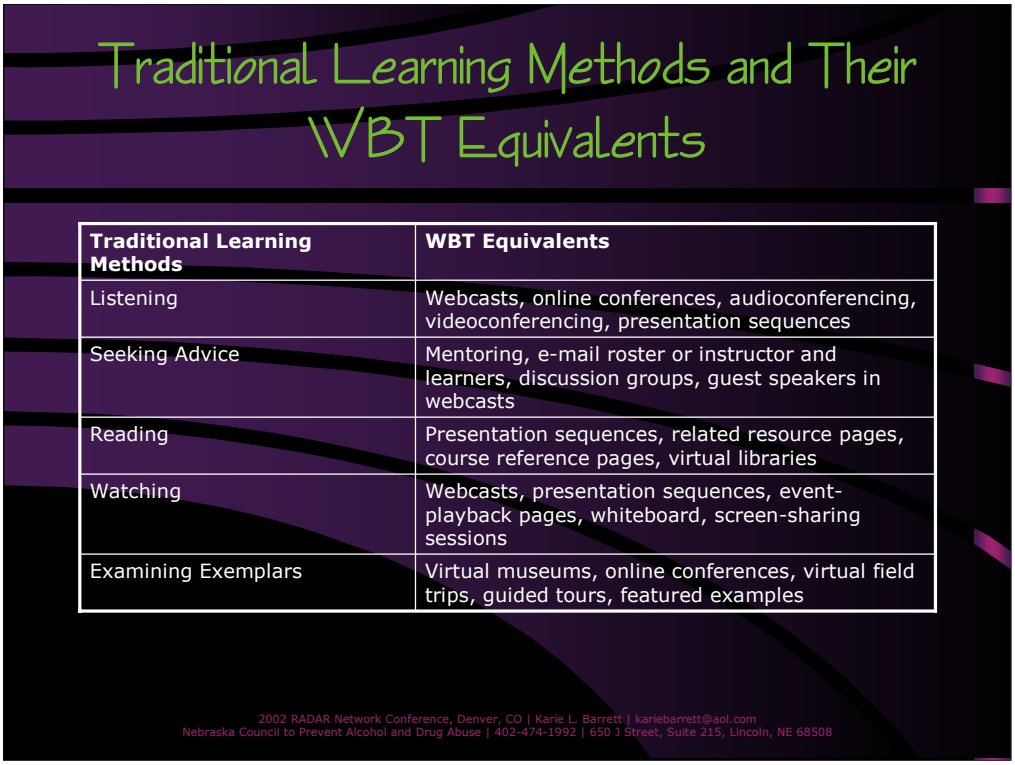
Creating Motivation

- Set clear expectations.
- Clearly state the benefits of learning- focus on personal gains rather than course objectives
- Invoke curiosity- Start with a pretest that leaves learners wanting to know why their answers were right or wrong, show desirable results learners can accomplish by completing the course, or state a common problem and state that learners will learn to solve it by taking the course.
- Challenge learners- increase the difficulty gradually, acknowledge progress by providing encouraging feedback throughout the course, or layer materials by providing optional material so learners who are interested in a particular part can find out more on their own.
- Offer incentives for completion such as coffee mugs, awards, certificates of achievement, etceteras.



Types of Learning Experiences Possible

- Examining good and bad examples
- Performing a procedure or playing a role
- Planning and conducting experiments
- Listening to someone tell a story
- Answering questions on a subject
- Searching for relevant resources
- Participating in a discussion
- Gathering and analyzing data
- Repeatedly recalling and applying knowledge
- Creating work and having it critiqued by others
- Critiquing the work of others
- Watching a video or animation sequence
- Comparing, contrasting, and summarizing information



Traditional Learning Methods and Their WBT Equivalents

(See "Traditional Learning Methods and Their WBT Equivalents" Handout)

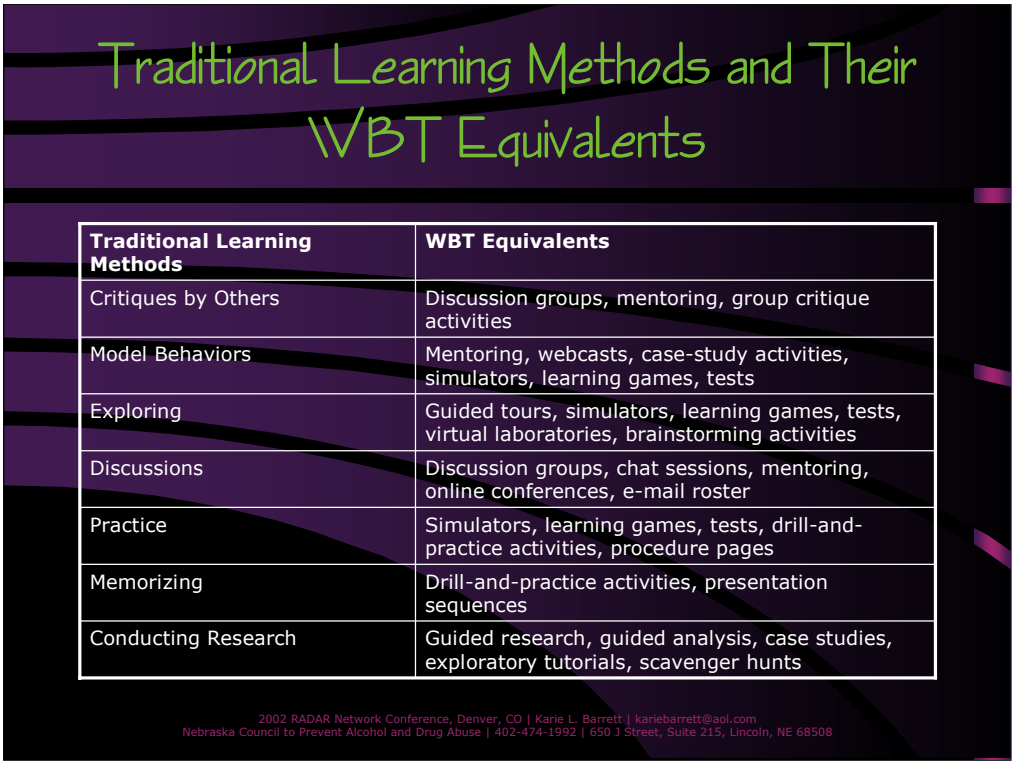
Listening sequences - Webcasts, online conferences, audioconferencing, videoconferencing, presentation sequences

Seeking Advice - Mentoring, e-mail roster or instructor and learners, discussion groups, guest speakers in webcasts

Reading - Presentation sequences, related resource pages, course reference pages, virtual libraries

Watching - Webcasts, presentation sequences, event-playback pages, whiteboard, screen-sharing sessions

Examining Exemplars - Virtual museums, online conferences, virtual field trips, guided tours, featured examples



Traditional Learning Methods and Their WBT Equivalents

Critiques by Others - Discussion groups, mentoring, group critique activities

Model Behaviors - Mentoring, webcasts, case-study activities, simulators, learning games, tests

Exploring - Guided tours, simulators, learning games, tests, virtual laboratories, brainstorming activities

Discussions - Discussion groups, chat sessions, mentoring, online conferences, e-mail roster

Practice - Simulators, learning games, tests, drill-and-practice activities, procedure pages

Memorizing - Drill-and-practice activities, presentation sequences

Conducting Research - Guided research, guided analysis, case studies, exploratory tutorials, scavenger hunts

Creating a Design Document

(See "Creating A Design Document" Handout)

- Introduction
- Instructional Strategy
- Navigation Map/Treatment & Web-based Training outline
- Resources
- Program Management
- Budget
- Deliverables

Creating a Design Document:

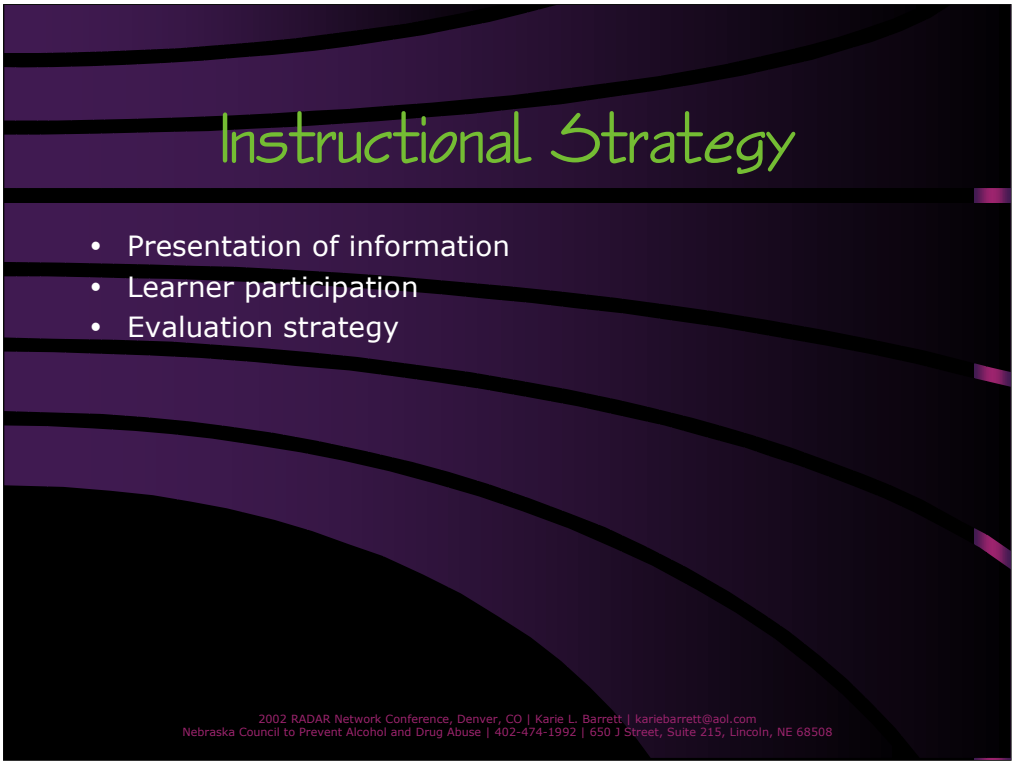
Introduction

Background- about why a WBT solution is appropriate

Opportunity Statement- how this organization will be able to improve productivity, reduce costs, increase profits. etc.

Audience- age, educational level, job description, computer skills, etc.

Goals/Objectives- explain the goals in easy to understand language, include objectives so the reader understands what skills must be mastered to achieve the goal



Creating a Design Document:

Instructional Strategy

Presentation of information- an overview of the look and feel and how you plan to present the content (text, lecture, video, audio, animations)

Learner participation- details on how learners will participate (self-paced reading, chat, Web-based videoconference)

Evaluation strategy- discuss how you assess the learners' mastery of the content (true/false, multiple choice, fill in the blank, short answer, essay)

Creating a Design Document:

Navigation Map/Treatment & Web-based Training Outline

High-level graphic map- a navigation map of how the program is structured

Treatment statement- a brief description of the program

Lesson outline for each unit:

- Title
- Goals/Objectives
- Length
- Content
- Learning Activities
- Assessment

Creating a Design Document:

Resources

Design Resources

- People- Project Manager, Subject-matter Experts, Instructional Designers
- Equipment- Computers, Software to develop a prototype

Development Resources

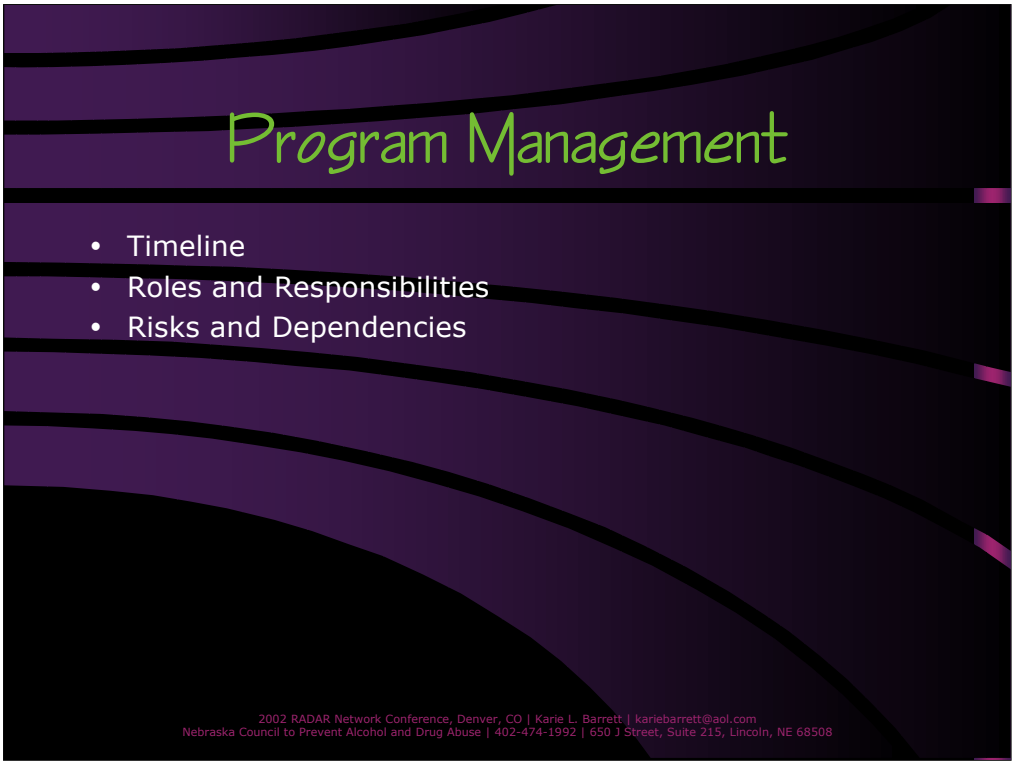
- People- Instructional Designers, Course Developers, Graphic Artists, Editors, Programmers, Facilitators, Pilot Subjects, Administrators
- Equipment- Servers, Network Access, Computers, Software to create audio, animation, text, graphics, video,

Delivery Resources

- People- Course Developers, Webmaster, Programmers, System Manager, Local Installation Support, Helpdesk Staff, Facilitator
- Equipment- Computers, Software, Servers, Network

Maintenance Resources

- People- Webmaster, Programmers, System Manager, Helpdesk Staff
- Equipment- Computers, Software, Servers, Network



Creating a Design Document:

Program Management

Timeline- start and end dates for milestones

Roles and Responsibilities- of each team member internal and external to the organization

Risks and Dependencies- list potential problems beyond your control like learner access to the Internet on a 56K modem or higher

Creating a Design Document:

Budget

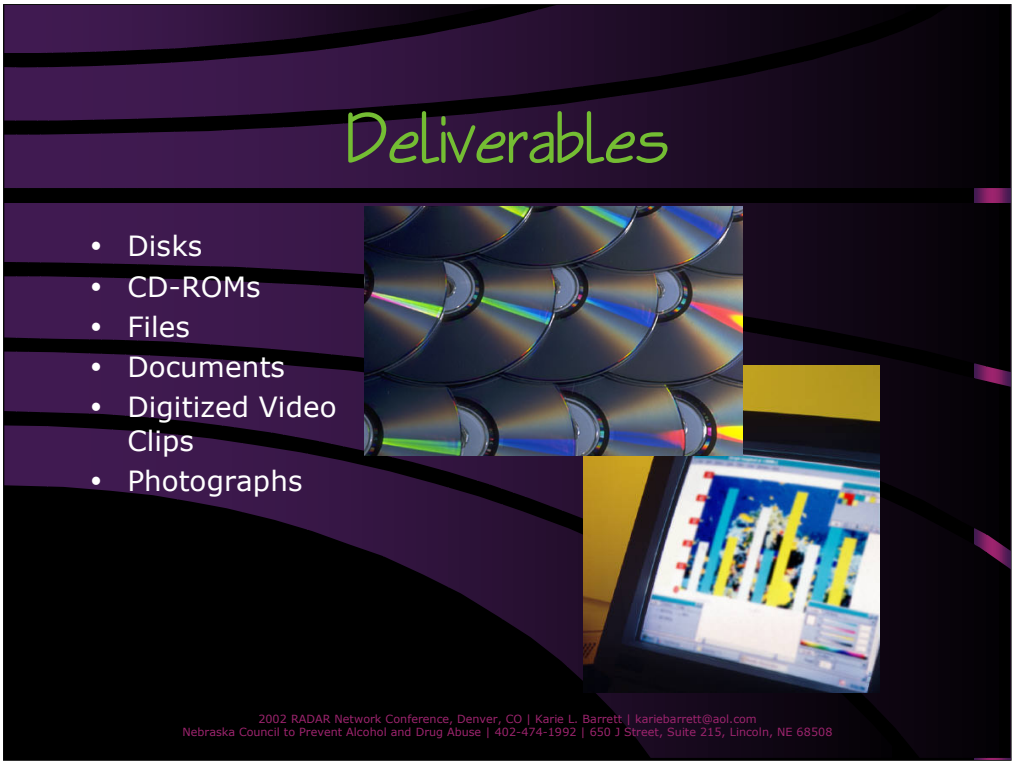
Skilled Labor- list the labor costs of all team members internally and externally

Production Value- the number of hours required to develop the product, base on the number of hours required to develop one hour of WBT*

E-learning Software- include expenses for the software license, training, support, updates, and integration

Hardware- include required hardware needs such as computers with additional memory or graphics capabilities, servers, modems, network connections, etc.

Stock Images and Media- include costs of images, video, graphics, animation or other media

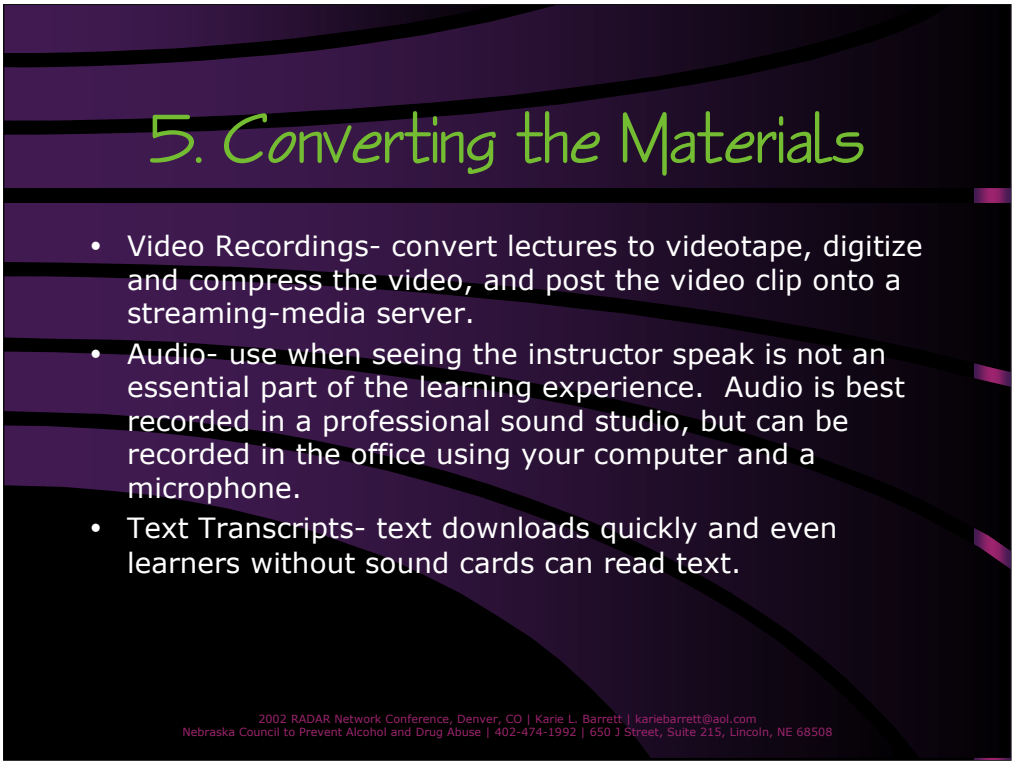


Creating a Design Document:

Deliverables

These are the items that will be created from the project:

- Disks
- CD-ROMs
- Files
- Documents
- Digitized Video Clips
- Photographs

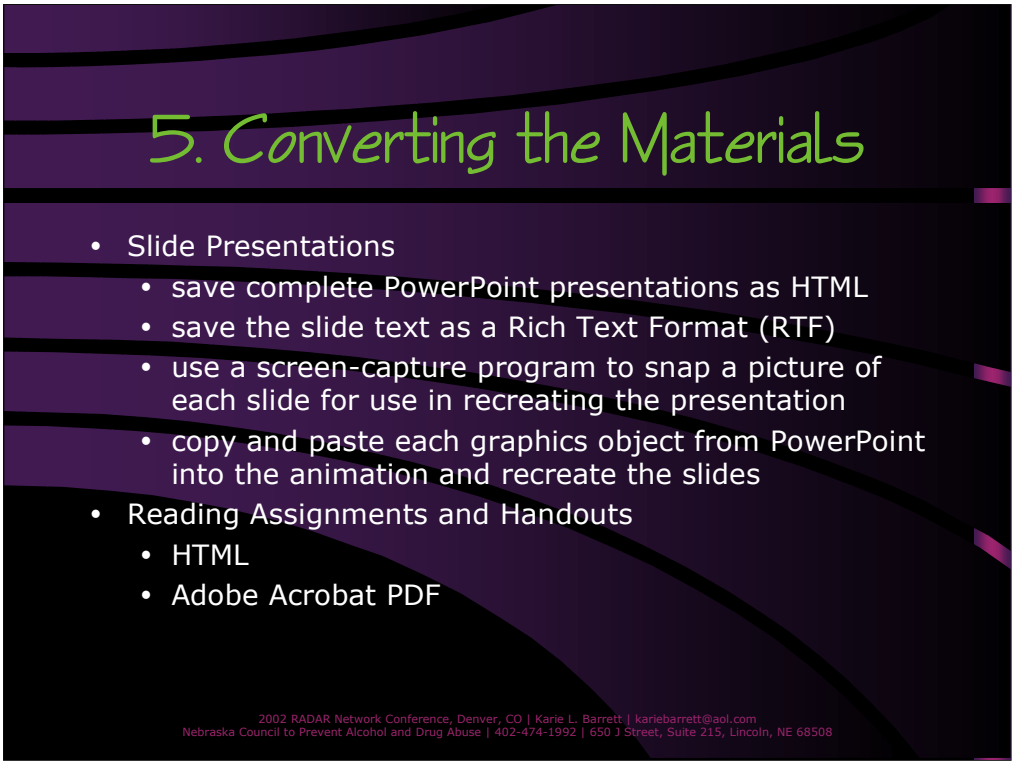


5. Converting the Materials

Video Recordings- convert lectures to videotape, digitize and compress the video, and post the video clip onto a streaming-media server. Reserve for use when you need to convey emotion through facial expressions, gestures, and body language or for showing how to manipulate 3D objects.

Audio- use when seeing the instructor speak is not an essential part of the learning experience. Audio is best recorded in a professional sound studio, but can be recorded in the office using your computer and a microphone.

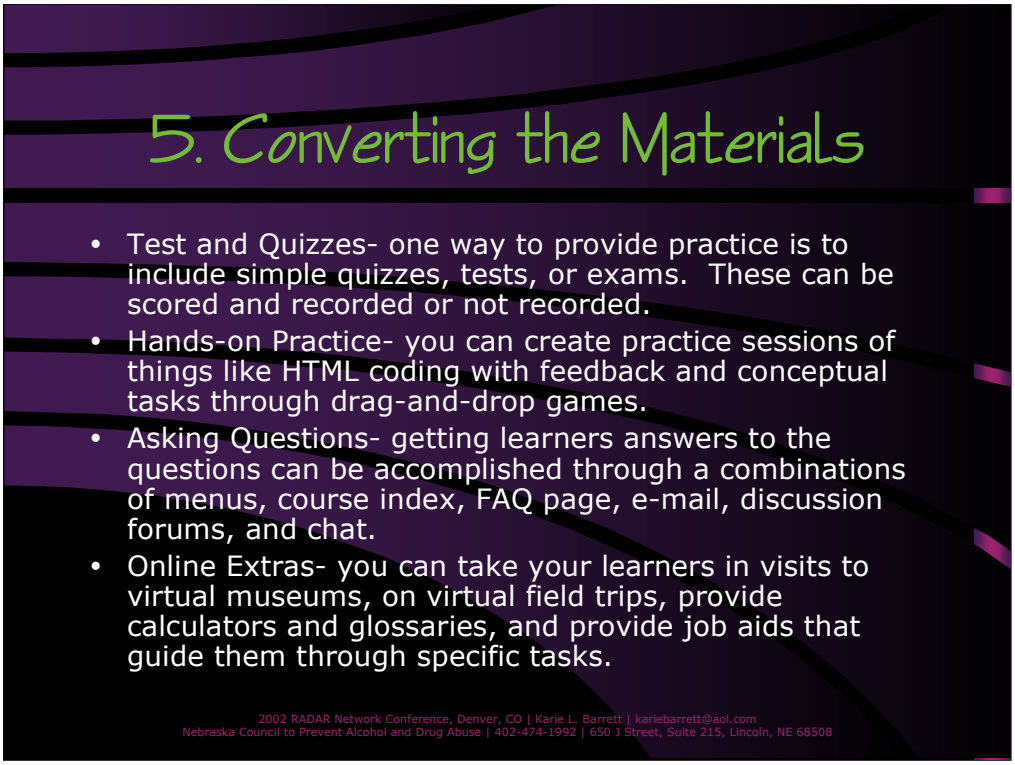
Text Transcripts- text downloads quickly and even learners without sound cards can read text. If you include sound, you may still want to include a text transcript for accessibility.



5. Converting the Materials

Slide Presentations- you have several options for converting your slides to content for the web: save PowerPoint presentations complete with their graphics, sound bytes, text, and notes as HTML which will create a series of linked web pages corresponding to the slides in the presentation, save the text of the slides as a Rich Text Format (RTF) for importing into the courseware program, use a screen-capture program to snap a picture of each slide for use in recreating the presentation in a animation program, or you can copy and paste each graphics object from PowerPoint into the animation and completely recreate and improve upon the slides.

Reading Assignments and Handouts- all readings can be converted to an electronic format. Select from converting your documents to HTML format or Adobe Acrobat PDF and then creating jump pages to link your documents to and to provide links to other documents on the World Wide Web.



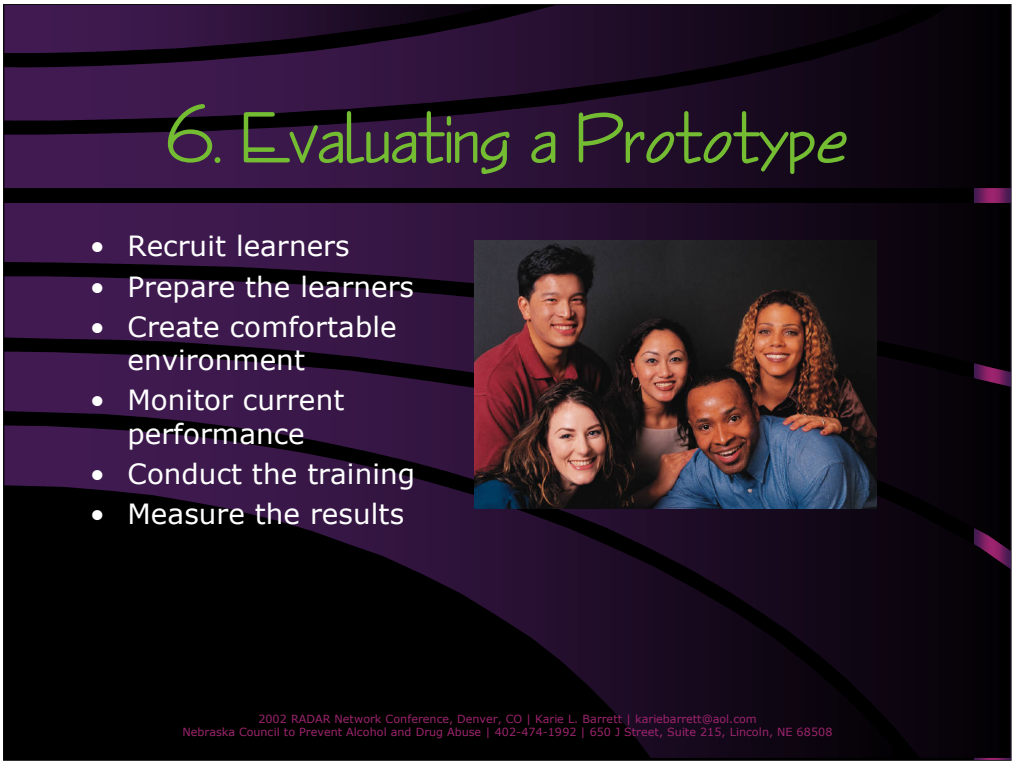
5. Converting the Materials

Test and Quizzes- one way to provide practice is to include simple quizzes, tests, or exams. These can be scored and recorded or not recorded.

Hands-on Practice- you can create practice sessions of things like HTML coding with feedback and conceptual tasks through drag-and-drop games.

Asking Questions- getting learners answers to the questions can be accomplished through a combinations of menus, course index, FAQ page, e-mail, discussion forums, and chat.

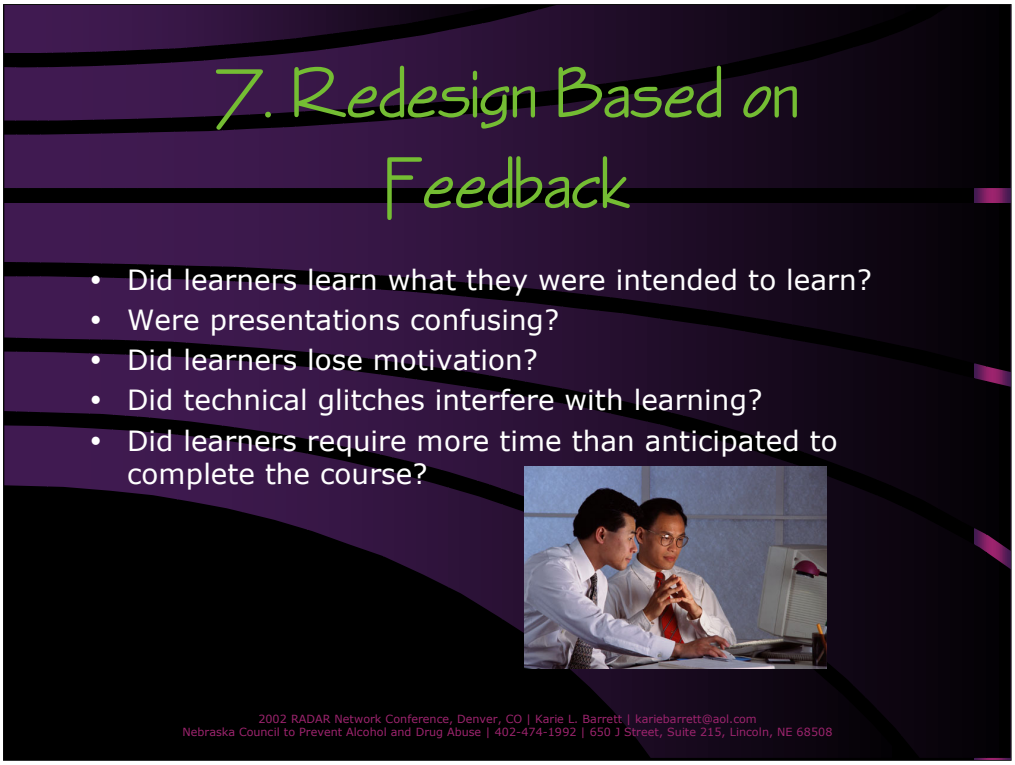
Online Extras- due to the great diversity of content available on the web, you can take your learners in visits to virtual museums, on virtual field trips, provide calculators and glossaries, and provide job aids that guide them through specific tasks.



6. Evaluating a Prototype

Once you have created a pilot version of your course you need to test it with actual learners. Measure their subjective reactions, whether they met their goals, and how well they can apply what they learned.

- **Recruit learners**- select people with the same needs, motivations, and background as your target market
- **Prepare the learners**- explain the purpose of the pilot and provide background information
- **Create comfortable environment**- help the learners feel comfortable with their role as evaluator, do not be impatient with novices, separate the criticism of the content, design, and interactions from the learners' frustrations with the network speed and browser interface.
- **Monitor current performance**- measure current performance, knowledge, and attitudes to create a baseline measure
- **Conduct the training**- make the pilot as realistic as possible. Does the course launch and close correctly? Is there any missing content or links that are broken? Is the course performing quickly enough?
- **Measure the results**- compare the performance, knowledge, and attitudes to the baseline measure



7. Redesign Based on Feedback

Consider the results of the pilot evaluation with the design team and identify ways you can improve the course to overcome any negative feedback.

- Did learners learn what they were intended to learn?
- Were presentations confusing?
- Did learners lose motivation?
- Did technical glitches interfere with learning?
- Did learners require more time than anticipated to complete the course?

Repeat until everything works smoothly.

Examples

- Monitoring the Technical Side of E-Learning Links
- Programs That Teach Attitudinal, Psychomotor, and Cognitive Skills
- Web/Computer-Based Training Demo Courses
- Web/EPS Systems
- Web/Virtual Asynchronous Classrooms
- Web/Virtual Synchronous Classrooms

Monitoring the Technical Side of E-learning Links

- Brandon-Hall.com Dispatch (www.brandonhall.com/public/dispatch/index.htm)
- Computer World (www.computerworld.com)
- TechRepublic (www.techrepublic.com)

Programs That Teach Attitudinal Skills

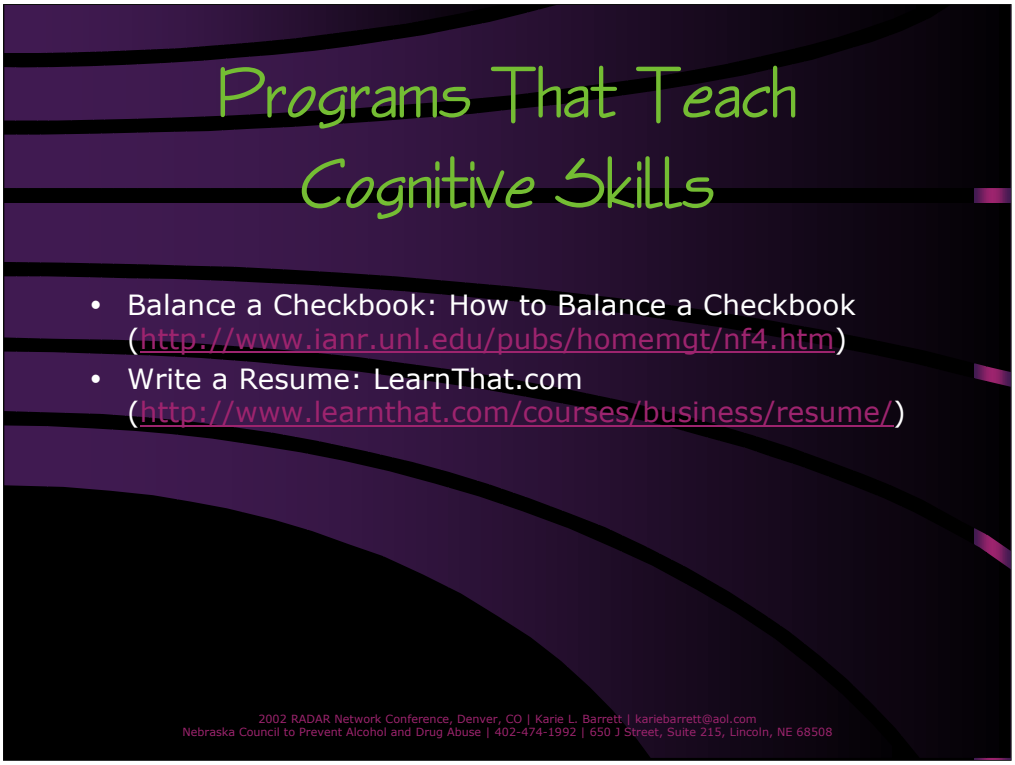
Attitudinal Skills

- Negotiating Your Success: YouAcheive.com (www.youachieve.com/testdrive/default.asp)
- Developing Fundamental Critical Thinking Skills: SkillSoft.com (www.skillsoft.com)

Programs That Teach Psychomotor Skills

Psychomotor Skills

- Learn2.com- www.tutorials.com
- Project Index: Home Depot.com (www.homedepot.com)



Programs That Teach Cognitive Skills

Cognitive Skills

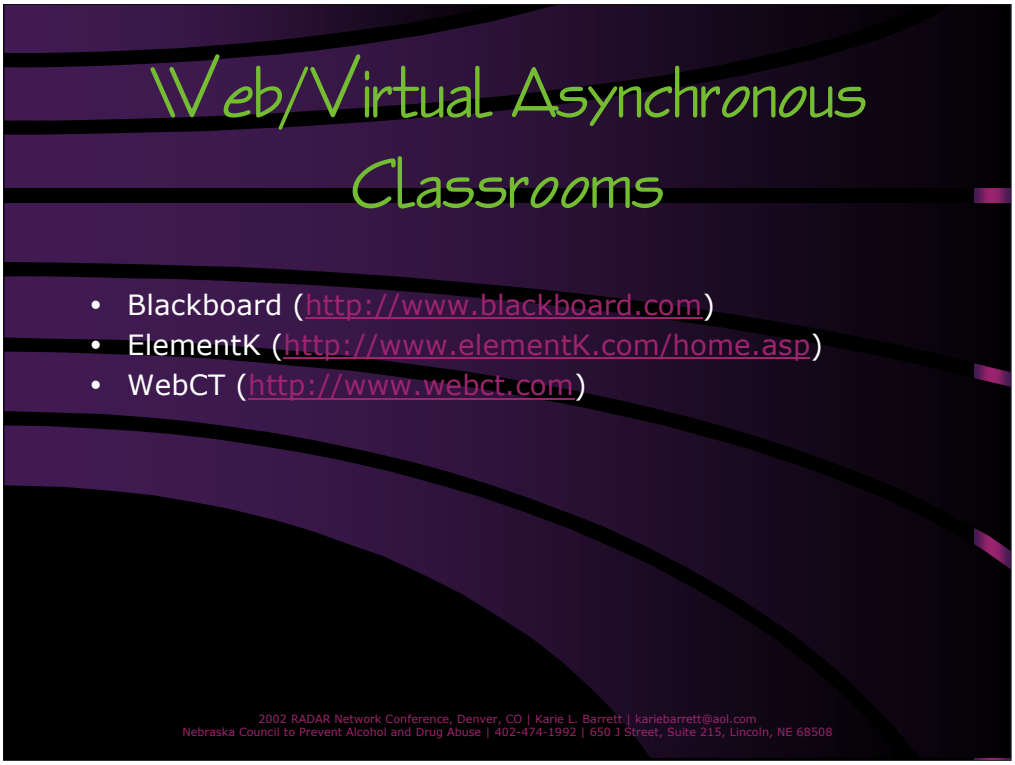
- Balance a Checkbook: How to Balance a Checkbook (www.ianr.unl.edu/pubs/homemgt/nf4.htm)
- Write a Resume: LearnThat.com (www.learnthat.com/courses/business/resume/)

Web/Computer-Based Training Demo Courses

- NETg (www.netg.com/DemosAndDownloads/)
- Mindleaders (www.mindleaders.com/products/demo.html)
- SkillSoft (www.skillsoft.com/demos/index.asp)
- BitLearning (www.bitlearning.com/serebra/index.cfm)

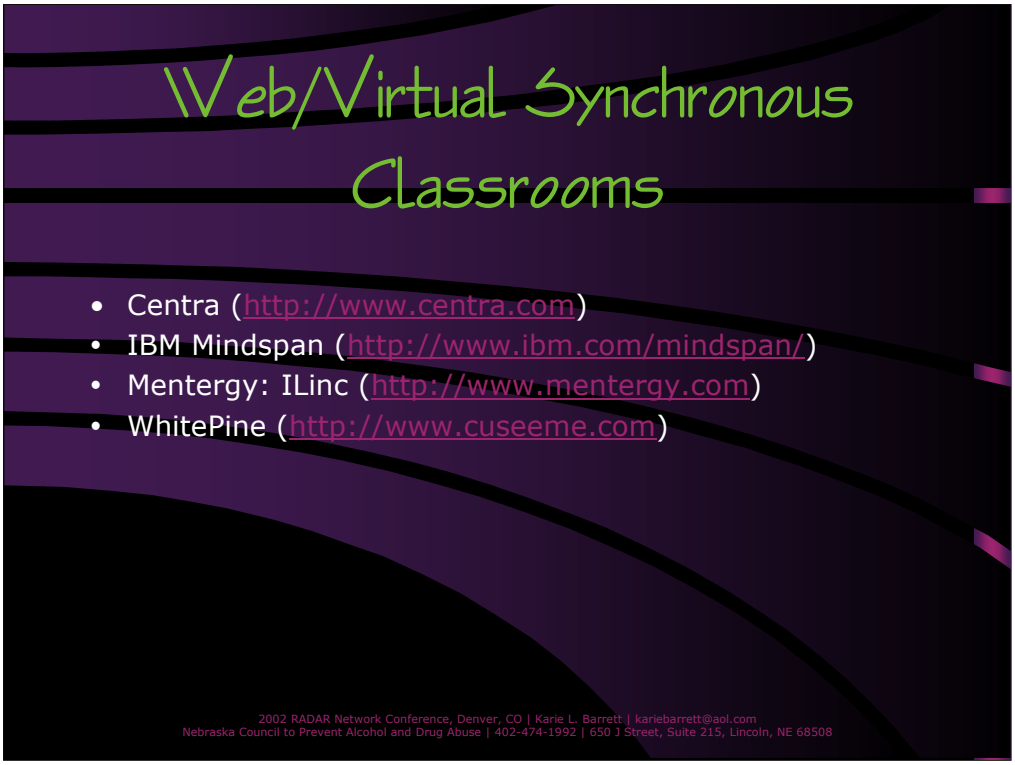
Web/EPS Systems

- EPSS Info Site (www.epssinfosite.com)
- EPSS World (www.epssworld.com)
- Quicken: Retirement Planner (www.quicken.com/retirement/planner/)
- Calgary Homes: Floor Planner (www.calgaryhomes.com/HTML/interactive/floorplanner.HTML)



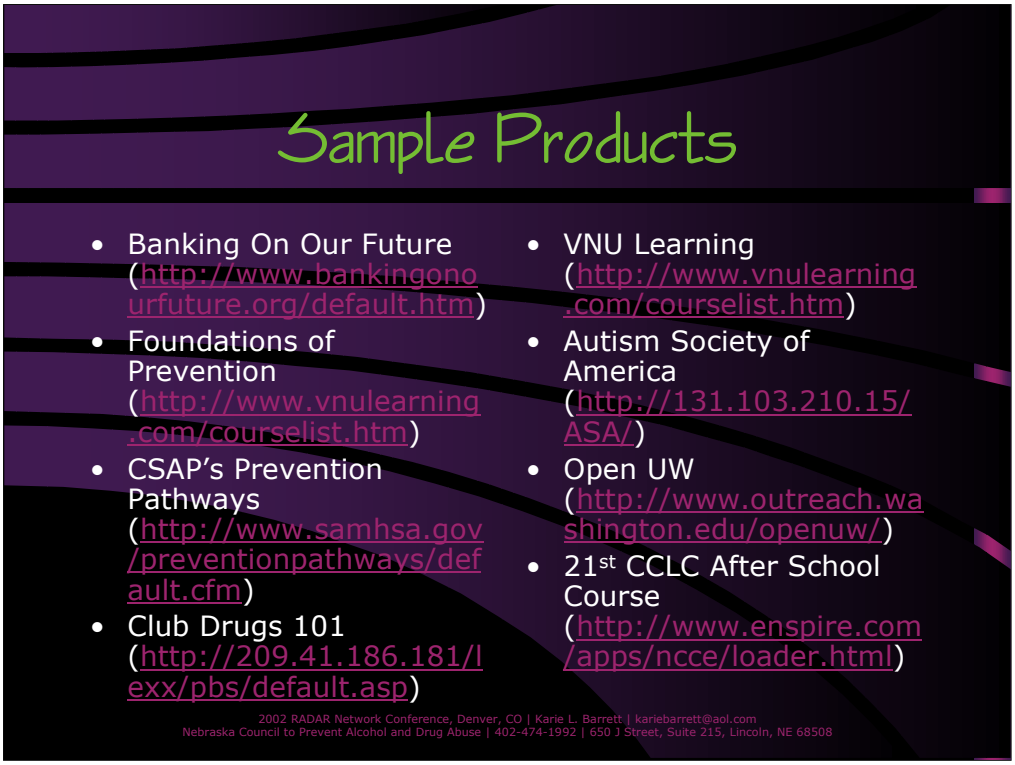
Web/Virtual Asynchronous Classrooms

- Blackboard (www.blackboard.com)
- ElementK (www.elementK.com/home.asp)
- WebCT (www.webct.com)



Web/Virtual Synchronous Classrooms

- Centra (www.centra.com)
- IBM Mindspan (www.ibm.com/mindspan/)
- Mentergy: ILinc (www.mentergy.com)
- WhitePine (www.cuseeme.com)



Sample Products

- Banking On Our Future http://www.bankingonourfuture.org/default.htm
- Foundations of Prevention http://www.vnulearning.com/courselist.htm
- CSAP's Prevention Pathways http://www.samhsa.gov/preventionpathways/default.cfm
- VNU Learning http://www.vnulearning.com/courselist.htm
- Autism Society of America http://131.103.210.15/ASA/
- Open UW http://www.outreach.washington.edu/openuw/
- 21st CCLC After School Course http://www.enspire.com/apps/ncce/loader.html

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